# A Survey of the Health Services of Tyneside Industry

together with

## A Plan for their Development.

by

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# Introduction.

The work upon which this thesis is based was conducted under the auspices of the Nuffield Foundation. A grant, to cover its cost, was made to the Department of Industrial Health in the University of Durham in 1955, and work was begun in April, 1956.

The terms of reference of the bequest were:-

> " ......to explore the possibility of establishing a Tyne-Valley Industrial Health Service, ...... a survey is to be made of the area ...... The survey will establish the distribution, geographically and by size, of the various industrial firms, how many people they employ, what these people do, whether they would welcome and Industrial Health Service, and what medical facilities exist at present ..... It is hoped that when the facts are known, it may be possible to plan an Industrial Health Service suited to the needs of the area, and then to develop it gradually either in part, or over the whole of the area."
>
> (1)
>
> "The Nuffield Foundation 10th Report 1955."

In the light of subsequent events and experience some of these terms of reference were slightly modified. Nevertheless, the ultimate aim, to produce a plan for an Industrial Health Service for the Tyne Valley was adhered to. The geographical location of manufacturing industry, by size and type, was established, the distribution of its working population was outlined, and a survey of existing health facilities in these industries was carried out. An attempt was made to assess the reserves of medical man power available to staff such a service, and the effectiveness of those present resources of the National Health Service, which relate to industry's particular needs, was examined. It proved impracticable to obtain any scientifically accurate estimate of opinion about the proposed service, but many reactions to the proposals were obtained from the medical profession and both sides of industry, and some are included in the text. The opinion of a small section of industry was, however, thoroughly explored in a fringe area of the region where it was decided to establish a demonstration pilot Industrial Health Service. Finally a plan, based upon local findings, and upon general current thinking about the subject, was produced for the development of a comprehensive Industrial Health Service for Tyneside. It must be pointed out that in relation to the potential size of the investigation the resources of the survey were meagre. These resources, one medical practioner with secretarial assistance, did not allow a detailed examination of more than a few of the problems which were revealed during the course of the survey. Further it proved, for the same reason, impossible to carry out, any scientifically worthwhile, evaluation of the vast mass of environmental problems existing in the local industry. Many purely subjective impressions about these were obtained and some are used to illustrate points in the text.

The scheme of treatment of the subject is set out in the table of contents.

## Reference.

(1). The Nuffield Foundation 1955. 10th Annual Report. London.

# Chapter 1.

## Definition of the Survey Area.

The initial task of the Survey was to define the boundaries of the area within which the investigation was to be conducted. Matters would be simplified if existing boundaries rather than purely arbitrary ones could be used, as much statistical data would then be available about the existing administrative divisions. The multiplicity of local government and other administrative areas within the region of Tyneside is profound. Within the several different regional demarcations available there are a multitude of different separate sub-divisions which rarely, if ever, coincided with each other. The only feasible existing boundaries, which included the whole of the area known as Tyneside within a single boundary line were:-

a) The Tyneside Conurbation, as delineated by the Registrar General for Census purposes (See Map No. 1).

b) The Standard Divisions of Great Britain for Research Purposes as defined by the Board of Trade. (See Map no. 1. ).

Both these areas are composed of arbitrarily selected groups of existing local government or other administrative divisions. The criteria used in drawing up these groupings were:-

1. The Tyneside Conurbation.

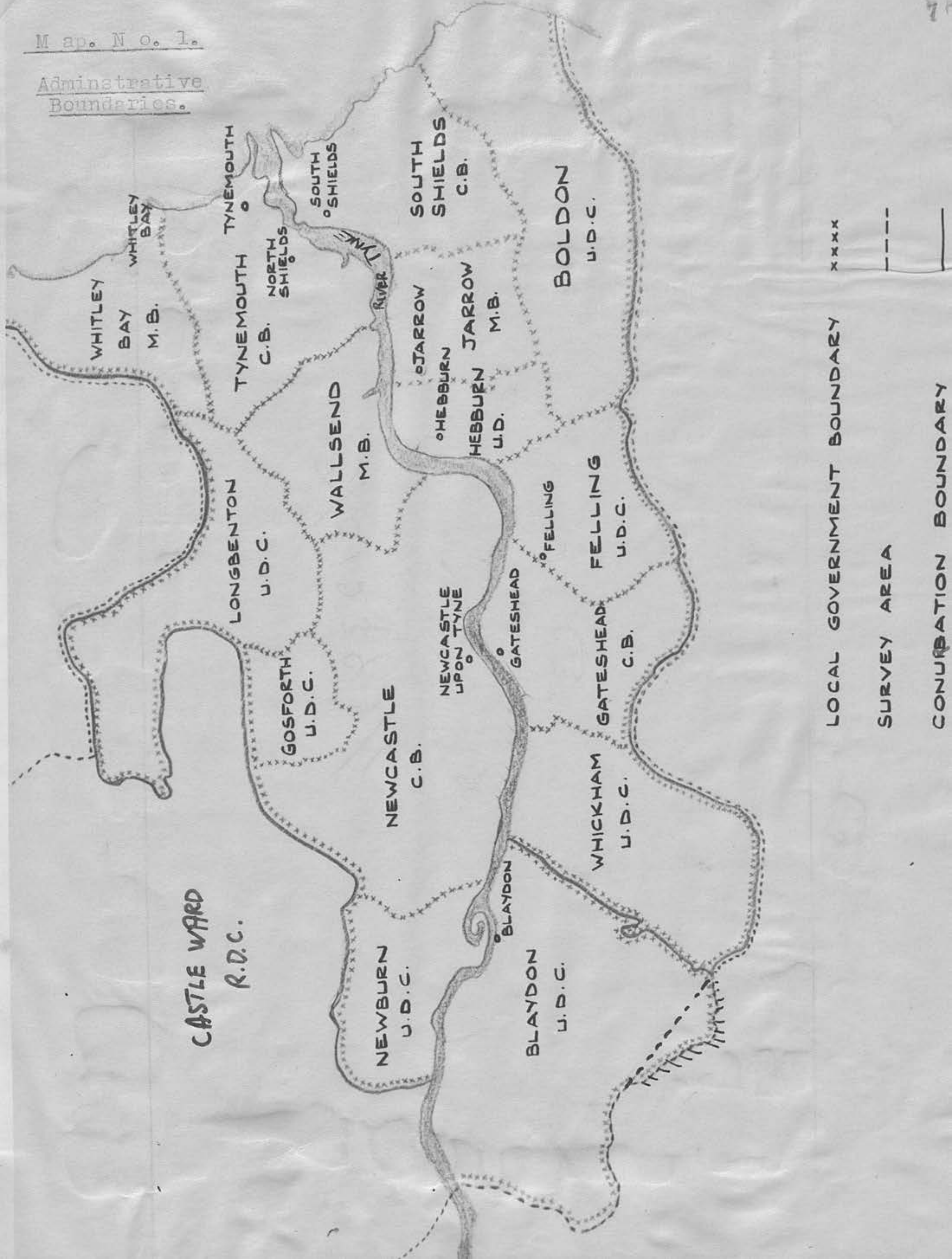
"Firstly, a conurbation should be a continuously built up area. Secondly, an area should be included in the conurbation if it is strongly attached to a common focal centre for work, shopping, higher education, sport or entertainment. Thirdly, the population densities of all the areas included in the groupings will be of the same degree." (1).

On this definition Sunderland is omitted as it is industrially distinct and geographically separate from the main Tyne area. (It is difficult, however, to see why, using the above definition, Blaydon U.D. and Ryton U.D. were excluded from the conurbation.)

2. The Standard Divisions.

"These divisions correspond in particular with the Standard Regions of the Board of Trade, and within these regions, to the "Statistical Groupings" of Employment Exchanges which provide data about the insured population. A further criterion is the dependence of the areas upon similar industries or upon industries selling on the same market. Finally, Map. No. 1.

Adminstrative Boundaries.



like the Census areas they are those areas within which daily travel to work takes place on a "considerable scale". (2).

As will be seen from the map, the Conurbation Boundary follows exactly those of certain local government areas. The Standard Division for Tyneside follows somewhat similar local government boundaries, but there is an arbitarily drawn straight line in the south west of the area running across the centre of Blaydon Urban District. The large rural area in the north west of the Standard Division results from the peculiar "statistical grouping" of Employment Exchanges controlled from the central Newcastle Exchange, whose administrative areas covers the small, part-time exchanges of the country districts.

The statistics for the Census Conurbation area are much more detailed and comprehensive than those for the Standard Divisions. The Census data, however, does not give an up-to-date estimate of the insured, i.e. working, population by the industries which employ them and for the purposes of this survey this latter piece of information is essential. For this reason alone the more unsatisfactory Standard Division was chosen to be the Survey Area, as figures for the working population within it were readily obtainable from the Ministry of Labour and National Service. It proved impossible to build up accurately the structure of the working population of the Census Conurbation. It would have been theoretically possible to do this by combining the returns from all the individual Employment Exchanges within the boundaries of the Conurbation. On closer investigation, however, it was found that on the periphery of the Census area the boundaries of the Employment Exchange areas supplying the information rarely coincided with those of the Conurbation.(3).

Thus the Survey area chosen is the Tyneside district of the North East Development Area, as defined by the Board of Trade (See Appendix Table No.3. ). It contains the 1951 Census Conurbation area plus various peripheral additions. As will be seen, and explained later, (Chapter 5. ), these minor peripheral area have been ignored when considering much of the statistical data available from the Census Reports.

## References.

(1). Census 1951. England and Wales. Report on Greater London and five other Conurbations. [redacted] H.M.S.O. London.

(2). The North East Development Association (1956). The Northern Region. Appendix. Newcastle Upon Tyne.

(3). Personal Communication 1956. Regional Controller. Ministry of Labour and National Insurance.

## Chapter 2.

## Historical Development of the Economy of Tyneside.

### Romans to Plantagenets.

The centre of the Tyneside conurbation is the city of Newcastle, and over the years its dominance of, and influence on, the development of the region has depended upon four factors. Its nearness to the border with Scotland, its situation on the main and lowest crossing of the River Tyne, its easy access to the sea, and its central position in a large and rapidly expanding coal field. At different periods the relative importance of each of these factors has varied, but in all ages each of them has had some influence on the development of the region as a whole.

In 120 A.D. the Emperor Hadrian fixed the northern limit of the Empire and ordered the building of a defensive fortification from the Solway to the Tyne. In the East the fortification ended on the Tyne at Segedunum (Wallsend) and so protected the flank of the river crossing at Newcastle - a wooden bridge on stone piers named Pons Aelius in honour of Hadrian's family. The crossing here, where the river is narrow and dominated on either side by high cliffs, was second only in importance in the North to the military base at Corstopitum (Corbridge). This town lay 15 miles to the west on Dere Street, the principal military highway leading directly to the main legionary base at Eburacum (York).

The pagan Angles,Saxons, and Jutes, turned out the Christian Britons from the east of the island after the Romans left in the 3rd Century A.D., and by the 6th Century Northumbria was the foremost Anglo-saxon Kingdom. The kingdom was converted to Christianity by the monks of Iona about this time, and a thriving centre of Christian culture developed. For three centuries the kingdom developed in tranquillity, until internal divisions, and the invading Vikings from Norway broke it up. For two centuries thereafter violence and chaos followed until, eventually, the King of Wessex hammered a rough unity upon the country south of the Cheviots.

From the Conquest onwards for fifty years the old kingdom of Northumbria was involved in continuous revolt against the Normans, under different leaders, and with aid from Scotland and Norway. Finally, to suppress the uprising, Oda, William'I's half brother, pillaged and laid waste a vast area of countryside from the Tees to the Tweed.

The degree of ferocity of his repression is indicated by the record in the Domesday Book that most of the manors in this area were "waste". The area North of the Tyne remained, largely, in this condition until Tudor times. South of the Tyne, the Palatinate of Durham was created by William I; primarily to secure his Northern frontier. The spiritual powers of the Church, and the temporal powers of the old Kings of Northumbria were combined in the person of the Lord Bishop of Durham. He ruled, within the County, with the approximate power of an autonomous monarch, having his own Council, Exchequer, Courts and Judges. The Northern limit of his jurisdiction was the Tyne, and an important function of the defence system of the border, which was the Bishop's main charge, was the control of the crossings of the Tyne. The most important of these was the Roman Pons Aelius, and, to ensure control of this, a "New Castle" was built on the northern bank. Soon a town, surrounding the fortress, began to grow and, under the protection of the garrison, trade flourished, encouraged by easy access, via the river, to the sea.

Throughout the Middle Ages the Crown needed the help of the local feudal barony to defend the frontier against the raiding of the Scots. The Palatinate of Durham alone having proved to have insufficient resources to deal with this task. In return for these services the Crown awarded further privileges to the principal nobles of the North, and their power steadily increased. By the turn of the 14th Century the Percy family came, by this, and other processes, to have almost uncontrolled dominance over the county of Northumberland. By the end of another century their importance to Northern defence, the size of their lands, and the scope of their local powers had made the Percys the pre-eminent feudal family of the whole country. This position, and their remoteness from the control of the central power of the Crown in London, made them the most independent and truculent of all the unruly feudal families. The powerful position of the Percys, however, saved Northumberland from the anarchy that swept England during the Wars of the Roses and afterwards.

In 1400 the borough of Newcastle obtained a charter from Henry IV separating the town as "county corporate", from the jurisdiction of the EARLS [redacted] of Northumberland. By the time of the Edwards the city walls had been completed, and its defences had been organised by the mayor and bailiffs. The town's population at this time was about four thousand. Its commerce depended upon the economy of the hinterland, and wool, hides, coal, and grinding stones, were the principle articles of trade. All these things were produced in the relatively small pastoral areas immediately North and South of the Town, and sold to merchants in the town's markets. The earliest coal was surface-mined from outcrops in the vicinity of Newcastle, and near the newly, developing, twin-town of Gateshead, across the river, which lay in Durham on the Lord Bishop's land. North of the river some of the coal belonged to the Burgesses, but the bulk lay a little further away, on the lands of the Prior of Tynemouth. Thus the early coal trade was almost completely dominated by the Church. The borough, however, controlled the loading and shipping facilities and there was continual conflict between the eccliastical and municipal bodies over the right to control the navigation of the Tyne. The issue was finally settled, in favour of the Burgesses, at the Reformation, and this settlement was to last until the time of Queen Victoria.

About this period a local monastery invented a fire-grate, with a chimney, which was an effective substitute for the old, open-hearth, domestic fire. From then on coal began to become a more popular means of domestic heating, as the sulphurous fumes it emitted could now be effectively removed from the interior of the house.

Tudors to the House of Hanover.

The six Northern counties still, in fact, formed a separate and semi-independent domain within the kingdom of England. Distant from the centre of power, with unfertile land, undeveloped economies, and mainly Catholic in religion, the still largely feudal society of the North East proved most resistant to the reforms of Henry VIII. The Reformation, together with the birth of capitalism about this time, was slow to be accepted in the North, and particularly in Northumberland. The emergent middle class of bourgeois merchants and manufacturers were in particular resented and went largely unrecognised, in the scheme of society, in the North-East. Henry set out to destroy the power of the Percys and was luckily helped by the improvident extravagance of the sixth [redacted] EARL of Northumberland. The Crown, in return for settling the [redacted] EARLE'S debts, acquired vast tracts of the original Percy lands. On a separate issue an Act of Parliament stripped the Lord Bishop of Durham of most of his Palatinate powers, and following this, the Council of the North was reorganised to allow more direct and positive Royal control. The North reacted, as on many other occasions, to these changes by revolts in 1536 and 1569. Both failed. In reply to these uprisings Henry VIII and Elizabeth I took a punitive vengeance on the area similar to that of Odo centuries before. The persecution of many of the Catholic nobility continued for long years thereafter. Despite these happenings, by the turn of the 16th Century the North-East had become more accessible, better governed, and was emergent from feudalism. Nevertheless, it still remained relatively backward for a further 250 years.

As well as removing any possibility of the future control of the waters of the Tyne from the Church, the dissolution of the monasteries removed the control of the infant, coal industry from its hands also. Crown leases of coal bearing land were granted to the towns' merchants, with a resulting change in the policy of development. Production of coal, to meet the new demand for fuel for town houses, particularly those of London, began to expand rapidly. Ships were then, and continued to be for many years, used as the only means of transport, for the heavy and bulky mineral. In two generations coal exports from the Tyne increased from 15,000 to 400,000 tons per annum and at the turn of the 16th Century coal production was doubling itself every 15 years.

In 1600 the Borough of Newcastle was given a new Charter confirming the control of the municipality by the principal merchants of the town. The majority of these men dealt with the mining and shipping of coal, and the Charter was given in return for an agreement, whereby a tax was levied, by the Crown, on each "keel" of coal shipped from the Tyne. Some slight weakening in the power of this clique followed in 1604, with another Charter allowing some of the other, existing trades to be represented on the Town Council. This made little difference; the effective control of the affairs of Newcastle remained in the hands of the coal merchants, and continued to be so until 1832.

For the next two and a half centuries the "Lords of Coal" financed and controlled the municipal, commercial, and industrial enterprises of the city and the lower Tyne Valley. The local land owners became colliery owners, because of the mineral lying under their lands, and the one time colliery owners became, with their increasing weatlh, prominent land owners in the country districts.

The period of the Civil War and Commonwealth were poor times for the Tyne. The city and locality were staunchly Catholic and Royalist, and had on several occasions given Charles I refuge, and had twice been occupied by Scottish troops. With the Restoration trade revived, and coal was in greater demand for domestic use, and for export, with the result that new pits, further upstream from the city, were opened. The development of the wagonway - horse-drawn wagons running on wooden rails - allowed new pits to be sunk further away from the river. By the end of the 17th Century coal was being exported from the Tyne to other parts of Britain, France, North Western Germany, and the Low Countries. Until now coal had been shipped in "bottoms" owned by East Anglian merchants, and the Dutch or Germans. With the increase in overseas shipments the local capitalists became interested in owning their own ships to transport the coal, as well as in producing and selling it. From this time onwards the number of local shipbuilding concerns began to increase, and this development was encouraged by Government policy from the mid 17th Century onwards.

Other industries, depending upon a ready supply of cheap coal, sprung up in the Tyne Valley from now onwards. Salt mining, glass making, brick making, brewing, lime burning and the metal trades were all flourishing by the end of the 17th Century. Glass, in fact, had been locally produced for the previous 150 years, beginning with immigrant Hugenots who brought their craft with them. But not until the use of wood fuel, in the manufacture of glass, was prevented by the Government, and coal used instead, did glass production expand greatly.

The Dawn of the Industrial Revolution.

Apart from those working in the industries touched upon already, the remainder of the population of the areas, who constituted the large majority, was employed in agriculture. The lack of good communications with the rest of the country delayed any large scale industrial development, other than coal mining. Thus even by the late 18th Century the fiscal assessment of the six counties north of the Humber and Mersey was equivalent only to that of Wiltshire, a thriving and well-developed agricultural county. In the North most of the land was high and uncultivated moorland. There were a few, small, intensely cultivated patches around the towns where the land had been enclosed and it produced meat, vegetables, and dairy produce for the urban population. Even so, in West Durham there were over a million acres of uncultivated, and almost barren, common land. The eastern half of the County of Durham was farmed by the newer methods of agriculture, introduced earlier in the 18th Century in East Anglia by Tull and Townshend. Elsewhere the commons were made to support many more animals than the primitive methods of husbandry allowed; there being no individual limit to the number of beasts that could be grazed upon them. The diet of the majority of the rural population consisted of oatcakes, ryebread, and buttermilk, and by the late 18th Century the increasing industrial population of the Tyne Valley had become dependent upon corn imports. The city of London had by this time a population of 675,000 people, and more and more coal for its fires was transported by sea from the mines of Tyneside and Wearside. (An interesting facet of local contemporary social values is worthy of note. Women and children were, and never have been, employed underground in the coal fields of Northumberland). In 1756 the 4,000 miners organised themselves, and continued for four months, their first successful strike. The practice of annual bondage to their employing mining company was stopped as a result. This strike is the first recorded in a long,and sometimes bitter series of industrial disputes involving the pit men. In this strike they were more successful than the shipwrights (the "keelmen"), who from the beginning of the century had been involved in a number of riotous conflicts with their masters. These disputes were also an attempt to break down the system of annual bondage to their employers, a system, which, virtually barred the craftsmen from seeking employment in other industries, during periods when shipbuilding was inactive and they were unemployed.

Iron smelting and tempering began to be established about this time in the upper Tyne area, and further down-stream in Gateshead. Raw material for these forges was brought to the riverside works in the colliers returning from the south in ballast. Much of this ballast was scrap iron and the local forges converted this, previously useless material, into anchors, chains and so on. The shipbuilding industry continued to flourish, but it must be emphasized that most of the ships built were small wooden coasters, and the larger ships, used for overseas trade, were, at this time, mostly built in the West country, although, towards the end of the 18th Century, a few of them were constructed locally.

Despite all this activity any large-scale expansion was hampered by the lack of adequate overland transport facilities. The Tyne was still un-navigable, for the larger vessels, beyond a short distance from the mouth. Landward communications were almost non-existent. Such roads as did exist were deeply pitted tracks of beaten earth which became impassable for heavy loads of bulky materials in wintertime. There were a few, relatively well-constructed and planned, military roads, such as that running between the east and west coasts. This latter road followed the line of the original "Roman Wall" and, in fact, most of the material forming it was obtained from the stones of the wall. By the end of the 18th Century the North still had no economically feasible landward communications.

Newcastle at this time had a population of about 20,000, packed along the riverside and around the bridge. In appearence it had changed little from the medieval fortress town, although, within the past 30 years, fashionable residences for the merchants had been built in new suburbs beyond the still intact walls. In 1751 Mr. Lambert, a young surgeon, raised a public subscription to provide the city with an Infirmary, and a wealthy benefactor offered a site for the new hospital which was opened on the 8th October 1752. This was followed in 1760 by the building of a new lying-in hospital. These two institutions are the ancestors of the present day United Newcastle-Upon-Tyne Hospitals.

It may be worthwhile digressing to give an account of the history of Ambrose Crowley who pioneered locally, in the 18th Century, much of the industrial welfare work that has become generally accepted as good practice only in the last half century. In 1690 this man established, with the help of immigrant Flemish workers, an iron smelting foundry at Winlaton, which lies at the western end of the Tyneside Conurbation. The local woods provided the charcoal, that was at that time necessary for smelting iron, and the water of the local streams was highly suitable for tempering it. The Tyne was navigable for small ships as far as nearby Swalwell, and this provided easy transport for his finished products. Later, a second forge was established by him on the river bank at Swalwell, to produce heavy forgings such as anchors and ordnance. This enlightened employer anticipated, in the Swalwell Works, much of the work of Robert Owen in his New Lanark factories some 150 years later. Crowley made himself responsible for the welfare of his workers in their domestic, as well as their industrial, lives. He built houses for them and employed a staff to maintain these in a habitable condition. Disputes over wages, working conditions, and industrial relations were settled in a manner much resembling modern day arbitration courts. Further, he introduced into his factories a contributory insurance scheme against sickness, old age, and death, and, with further financial aid from Crowley, this scheme employed its own doctor, clergyman, and schoolmaster. At its peak the works at Swalwell employed 700 workers.

Parts of Crowley's original factory at Swalwell stand today, and the original main building is used by a concern which casts concrete slabs. The managers of this firm knew well of Crowleys' activities and themselves provided some of this information about him.

The Early Industrial Revolution: 1790/1850.

Near the end of the 18th Century scientific discoveries, and new ideas of social philosophy, began to quicken the pace of change in the North-East. More agricultural land was enclosed and newer methods were applied to its cultivation and to the husbandry of stock. In some areas the acreage of useable agricultural land quadrupled itself, under the influence of the newer methods, within a quarter of a century. In industry the new developments in iron-working greatly affected Tyneside. The Darby process of smelting iron with coke, instead of charcoal, had proved successful, and the local abundance of coal, together with an expanding iron-working industry, provided a basis for a rapid exploitation of this discovery. In 1782 Watts' steam engine showed the way to the introduction of adequate and reliable power into industry, and under the impetus of the Napoleonic War, "heavy" industry became firmly established in the Tyne Valley. Thus the new era began.

As has been indicated easy transport of the heavy industrial products now coming from the Tyneside factories still depended upon the river and the sea. The discovery by Henry Cort, that brittle pig-iron could be converted, much more quickly, into malleable wrought-iron in a reverberatory furnace, allowed the first servicable iron rails for railroads to be developed. Up until about 1820 the North East Coast had depended upon unreliable wooden rails to get its coal delivered to the river side, and this handicapped considerably the exploitation of the more extensive coal resources further away from the river to the West. Soon the combination of a reliable track, and the development of the steam engine to provide motive power, resulted in early models of steam locomotives being tried out on local colliery railroads. In 1813 a successful model "The Puffing Billy", was being used regularly, first on wooden then on iron rails, to transport coal from the pits to the river-side coal staithes. These early locomotives, however, were unreliable in their performance and uneven in their power of traction, and the net result was that they could not be used to haul heavy loads up even modest inclines. Thus even as late as 1830, steam haulage was being used only on a limited scale for industrial purposes, and the widespread development of a railway system connecting the North East with the rest of the country was still to come.

At the beginning of the 19th Century the mines immediately west of Newcastle began to fail, and newer seams which, in fact, proved to be far richer and much easier to mine, were opened east of the town, in the Wallsend district. To exploit this coal-field new developments of mining techniques were needed, as the coal lay at a greater depth than had previously been workable. Such inventions as the safety lamp and the steam pump-engine were the principal inventions which made this advance possible. The coal extracted proved to be ideal for the domestic grate, and soon coal exports from the Tyne reached almost 2 million tons a year, and there were 75,000 miners employed in the areas around Tyneside and Wearside. The Tyneside pitman was reputed to be, at this time, the best paid workman in the whole of Great Britain.

Local iron-ore deposits were increasingly exploited as the size of the local iron smelting industry increased, but soon these resources proved inadequate to cope with the demand for iron. The industry began to leave Tyneside, and moved nearer to the newly discovered iron ore sources of the North Riding of Yorkshire.

Far upon the moors of the Pennines deposits of lead ore had been discoverd and its mining began. The ore was brought down by horse and cart to the riverside, to be smelted and from here the raw metal was shipped. This industry reached its peak in the first half of the 19th Century and owing to the failure of supplies of raw material, it thereafter declined, and at the present day occupies only a very minor place in local industry.

Under the stimulus of all this industrial expansion interest was renewed in improving methods of inland transportation. Canals were enjoying a boom elsewhere in the country, but the topography hampered successful canal-making in the North-East. However, the roads were improved and new and more reliable turn-pike roads were constructed. By 1815 Newcastle was connected by reliable roads to Berwick and Edinburgh in the North, and through Darlington to London in the South, as well as having many minor local service roads.

By the end of the Napoleonic Wars the industrial picture was beginning to resemble that of the present day. Collieries stood on both banks of the River from the mouth as far upstream as Wylam. Forges, foundries, factories, glass works, breweries, ship-building yards, all of which had existed for some 100 years, had expanded tremendously under the impetus of the increasing demands of the previous 30 years. The centres of all this activity were, of course, the towns of Newcastle and Gateshead, still joined by a single, narrow, rickety bridge.

Industry, in 1815, showed a much more diversified picture than today. Opinions vary, and statistics of trade are very meagre for this period, but it would appear that next to coal mining, glass making and glass-ware manufacture ran iron and its products close for second place in importance Local materials for all these industries were readily available and easily exploited. Following close behind these came pottery manufacture, in contemporary eyes an incongruous industry for this area. The flint and clay needed for making the pottery were used, like scrap iron, to ballast ships returning from the South for more coal, and the local lead industry provided cheap, and ample, glazing and colouring materials. Soap and chemicals, also, were relatively much more important in the early 19th Century than today. The chemical industry in particular, was founded upon coal, as the bye-products of the many local coke ovens, which sprang up to supply the new iron factories, provided the raw material. With the development of the hinterland agricultural produce was now being exported from the Tyne, and a feature of the local landscape was the numerous windmills, seen in old prints of the area; these were used to grind corn before shipping.

Further down-stream industry was concentrated around the river mouth. Larger vessels were unable to navigate, as yet, very far up the river, and they loaded and unloaded at North and South Shields. In these two towns, but particularly in South Shields, ships were also built and many of the ancillary trades, such as rope making, which went with shipbuilding at this time, were concentrated here. By 1809 South Shields had over 500 ships, of over 40,000 tons registered in the port, and a maximum of 200[redacted] ships of up to 500 tons displacement could ride at anchor in the roads.

Thus the Industrial Revolution gathered speed in the North East, although at this time it was not progressing as quickly as elsewhere in Great Britain. The pattern of local industry, it should be re-emphasized, was totally different to that which was to develop over the next 150 years.

From now on the development of the Tyne [redacted]came to be more and more related to the expansion of the recently discovered, but as yet only fractionally exploited, source of motive power - the steam engine. The useof steam to develop land and sea transport opened up the possibility of easier and more rapid communication between different parts of the country, and with the rest of the world. Eventually the area came to be one of the main sources of mechanical devices using this new power.

In 1814 the first local "steamer" was built and was used to tow sailing ships in and out of the harbour, and in 1819 the first steam packet service between London and the Tyne began using a locally built ship. A much more profound development came in 1842 with the building of the first iron ship at one of the new shipyards at Walker, which lay much further up stream than the site of any previous shipbuilding. Not until 1852, 12 years after its first development elsewhere, was the first propellor-driven, iron-built, steam ship built on the Tyne, and the golden age of local shipbuilding reached. This ship was launched by Mark Palmer at yet another new yard at Jarrow; a name and place of much significance in later history.

The demand for iron was insatiable and this meant more coal, and new pits. These were sunk in areas of known resources much further from the river, and more of rural Northumberland and Durham became industrialised as a result. Being further away from the bulk transport facilities afforded by the river, the new pits had to be connected by rail to the ports. The intervening terrain proved too much for the primitive locomotives of the 1820's and colliery owners had to fall back, temporarily, on the fixed steam engine hauling trucks up inclines by rope.

The increasingly confused net-work of these private railroads led to the natural implication that some rationalisation was overdue to avoid eventual chaos. The first public Railway Company began to operate from Stockton to Darlington in the south of the County of Durham in 1825. This still, however, was hampered by the difficulty in providing sufficiently reliable steam locomotives to haul its trains. George Stephenson, the engineer who had built this early railway, solved this problem in 1829 by demonstrating his new "Rocket" which was devised upon entirely different principles from older machines. Within 20 years of these two developments Newcastle was linked eastwards along both banks of the Tyne to the coast; to Berwick in the North; to Carlisle in the West; and through Gateshead with Darlington and London in the South, the through connection with London being opened in 1844. Robert Stephenson, the son of the inventor of the "Rocket", finally closed the gap between Gateshead and Newcastle in 1850 by building the dual purpose, road and rail High Level Bridge across the Tyne; still one of the main river crossings.

The direct importance to Tyneside of all these developments lay in the stimulus it gave to the infant engineering industry. Stephenson founded a locomotive works in 1820, and the Hawthorn family another one in 1824. These amalgamated works still exist on the site where Stephenson's "Rocket" was originally built. In 1847 a name, destined to become personified with Tyneside's heavy industry, first became prominent - W.G. Armstrong. He, at that date, bought two fields as a site for a new factory, in the then country district of Elswick, some 4 miles from Newcastle. This was built to make and exploit his newly invented hydraulic machinery. By the mid 19th Century, then, the engineering industry had become established, and as time passed the prosperity of the area became more and more linked with its fortunes.

The third local staple industry - shipbuilding- got off to a slower start than coal and engineering, despite its earlier beginnings. Only the area at the mouth of the river was naturally deep enough to take the larger, iron-built ships, and in rough weather these heavy vessels became difficult to handle in these unprotected waters. Further up-stream the river was narrow, the currents were strong, and there were numerous sharp bends and islands hampering navigation. Furthermore its depth varied considerably from place to place and time to time. A final, large obstacle was the bar at the river mouth, which at low tide was covered by only 6 feet of water. It was obvious that before larger and heavier ships could be built the waterway needed considerable improvement, whilst this improvement, in its turn, would allow the provision of better berthing and loading facilities. The major obstacle that lay in the way of any comprehensive development of the river was the monopoly of navigation which had been granted to the Borough of Newcastle by James I and which it had jealously guarded ever since. The Municipal Corporations Act 1835 had thrust new and heavy responsibility upon the burgesses of Newcastle and made it financially impossible for them to fulfill their committments to both the city and the river. It took, however, another 20 years to resolve the dilemma. In 1850 the River Tyne Improvement Act was passed and an Improvement Commission, representing the Councils of Newcastle, Gateshead, Tynemouth and South Shields, and the Admiralty, was appointed and charged with the development of the tidal waters of the Tyne, up to a point some 18 miles from the sea.

During these first 50 years of the 19th Century the medical services of the area, which in effect meant only Newcastle, continued to develop. The mainsprings of such efforts were usually the radical political reformers, and the wealthy industrial philanthropists. In 1822 Dr. Fife opened a new hospital for diseases of the eye, and in 1832 the Newcastle School of Medicine and Surgery opened, and by 1835 it had been recognised by the Royal College of Surgeons and by the University of London. The early years of this institution were ones of continued success but in 1851 a clash of personalities caused a rival school to be opened. However, when in 1852, the University of Durham recognised the original Medical School as a constituent college of the University, reunification of the two bodies soon followed. About this time a new wing was added to the old Infirmary which still stood in the old, crowded and insanitary part of the town.

1850 to the beginning of World War I.

From the middle of the 19th Century, a half century of almost uninterrupted expansion followed for local industry. Much of the raw materials needed were immediately to hand. There was coal in Durham, iron ore and limestone in the Cleveland Hills of North Yorkshire, and there was adequate transport by land and sea for all of these. Iron was made into rails, bridges, ships, engines, machines, and armaments. Iron was replacing wood; and machines were replacing the grosser forms of manual effort, as well as exploiting new processes. The iron-producing industry, however, declined on Tyneside from 1850 onwards in the face of competition from the more economic sites of Teeside, which were nearer the sources of ore in the Cleveland Hills. Coal was now being produced in ever increasing quantities, and new fields were discovered and developed. The steam coal of the Northumberland field, immediately north of the Tyne, was in great demand in the South, whilst the coking coal of North West Durham was transported by rail to the upper Tyne, where the improvements carried out by the Improvements Commission were, at last, allowing larger colliers to go up stream. By 1857 the combined outputs of all Northumberland and Durham collieries was 16 million tons, and within another half century this had risen to 56 million tons; being about one fifth of the total British production at this time. In 1848 there were only 250 miles of local railway track useable by steam locomotives, but by 1889 there were 1,600 miles of railroad in the North East region. The Tyne Improvement Commission, as already noticed, were making many improvements to the transport facilities. The Improvement Commission in co-operation with the railway and colliery companies built two large new docks near the mouth of the river, whilst the river itself was dredged, and widened, its banks strengthened, and obstacles removed from the channel. The measure of the Commissions work is shown by its impressive record. By 1914, the length of river available for ships up to 25 feet draught, was extended to 14 miles. Islands had been cleared from the channel, at the mouth the bar had been removed, and two mile-long, stone piers had been built out into the North Sea to protect the roads. It is interesting to reflect that one of the largest battleships of the time was built in the 1890's 4 miles up-stream of the main Newcastle bridge. By the turn of the century the work of the Improvement Commission had made it possible to load up to 40 colliers simultaneously at the improved berthing facilities, and, by the outbreak of the first World War, over 20 million tons of coal per annum were being shipped from the Port of Tyne; a figure which was only 4 millions in 1850.

In the middle 1870's Bessemer, Siemens, and Martin produced separate inventions which allowed steel to be made more easily and economically than malleable iron. This was a mortal blow to the already declining Tyneside iron industry. The new steel industry rapidly grew elsewhere, although the large engineering firm of Armstrong-Whitworths, and the prominent shipbuilding firm of Palmers incorporated new steel producing plants into their respective works.

As already mentioned, the first propeller-driven ironship was launched in 1852, and this ship set up new records of travel between Newcastle and London. This reduced the travelling time between these ports for a fully loaded collier to five days, as compared with the normal time of a month for a non-propeller driven vessel. Sir Charles Mark Palmer who had begun by turning out these civilian vessels, soon began to build naval ships, and his first rolled, armour-plate, war-ship, the "Terror", was used towards the end of the Crimean War. Thus Tyneside began an uninterrupted 70 year-long period of naval construction, particularly of the larger and heavier dreadnoughts. Interestingly enough the first oil-tanker, "Vaterland", was launched at Jarrow in 1872. The story of shipbuilding, in this area, is truly the personal story of Sir Charles Mark Palmer. He opened his yard in 1851 at Jarrow when it was surrounded by agricultural land and it completely dominated the small, neighbouring rural village. Within 50 years this hamlet had become a town of 40,000 people, almost entirely dependent upon his great shipbuilding concern. The raw materials of coal, iron-ore, and limestone came into the steel works at one end, and were made into complete ships within the works, and launched at the other end. Marine engines, boilers, ancillary equipment were all produced within this huge plant. For efficiency and skill the British shipbuilding industry, even today, knows nothing like the dynamic achievements of this great concern. Even during the lean years of the 1920's, this firm's competitive position was so strong that it gave the population of Jarrow, better conditions than most shipbuilders had during that period. In 1929-1933, however, conditions generally became so bad that even this ship-yard worked only intermittently. In 1934 the company was bought by the National Shipbuilders Security Limited, a consortium of other shipbuilders, who promptly closed it. The dismantling of the whole giant concern was only just completed by the time of World War II broke out. In the graphic phrase of the time the town of Jarrow was 'murdered' by this action. The fate suffered by the whole town aroused much comment at the time and the bitter memories of this event live today, and continue to colour contemporary industrial relations.

About the mid point of the 19th Century all the main shipbuilding and shiprepairing firms of the Tyne were founded. Most of the present day names existed then as individual concerns, but with the increasing size and complexity of ships much amalgamation between these separate yards took place. By the beginning of the 20th Century, the present pattern of the integrated shipbuilding company had become settled. These produce in their own marine engineering workshops the engines and other machinery for the ships, which are built by the same company, on the same or on adjacent site.

The growth of such combines in both the engineering and shipbuilding industries is illustrated by the personal story of W.G. Armstrong, who has already been mentioned. Born in 1810 he started life as a solicitor, but by 1844 his main interest had become engineering, and he had already developed several hydraulic inventions. With financial support he opened his first works in the Elswick area. The Crimean War stimulated his imagination in other directions, and in 1855 he produced a new type of field gun. To produce these he built another factory at Scotswood. Thus another industry - armament production - came to Tyneside. In 1868 Armstrong built, and equipped with his new weapons, a revolutionary type of gun-boat at the existing, independent shipyard at Walker. This project prospered so rapidly that by 1882 he had founded a shipbuilding concern on his own account, and he built a new yard close to the existing Elswick and Scotswood group of factories. Shortly after this he acquired the naval shipbuilding yard at Walker, to further the production of his inventions. Further expansion of this great concern soon followed when a steel works was added to the existing factories, and a Manchester armament firm - Whitworths - was brought into the group. So the Tyne came to have a second industrial giant, and another large section of local industrial life was heavily committed to the fortunes of a single company. During the first 20 years of the 20th Century the Armstrong-Whitworth Company prospered enormously, and at the peak of its activity during the First World War employed some 20,000 men. As will be seen later, its fortunes rapidly declined thereafter, and a series of complicated financial arrangements resulted in considerable contraction of its scope, and alteration in its activities. The main part of the works remained intact on the riverside, and they and the shipyard at Walker are now part of the Vickers Group. The production of armaments, however, is no longer a staple industry of the Tyne.

The story of the development of the marine turbine is an important item in the industrial history of the Tyneside area. The steam turbine was invented and produced originally in Newcastle by Charles Parsons in 1884. In 1894 he adapted his invention for marine use, and his little ship the "Turbinia" made a dramatic appearance at the Naval Review at Spithead in 1897. It caused much consternation amongst the assembled admirals of all nations, by steaming at 34½ knots through the lines of clumsy dreadnoughts, and thus at one stroke proved their obsolescence. Within 10 years the majority of the naval, and passenger vessels, built locally, were being driven by Parsons' machinery.

Table 1 (page 19 ) from the 1881 and 1911 Census data shows the numbers employed in various industries for the two counties, Northumberland and Durham, in these years. The increase in strength of the industries is also given between the periods.

Thus by 1914 the pattern of Tyneside industry, over half a century, had profoundly altered. Coal was still the dominating industry but its main sites of production had moved away from the immediate Tyne Valley, and within the conurbation the main sources of employment were engineering, shipbuilding, and armaments. Much of this activity was dominated by a small number of huge industrial enterprises. The working population had become, almost entirely, dependent upon the continued prosperity of a particularly narrow local band of the broad spectrum of British industrial diversity.

Nevertheless some other industries did manage to survive. Rope and brick manufacture still continued for instance, but soap, glass, ironmaking, and pottery, had all diminished considerably. Whilst there had been an introduction of a few new types of industry these only accounted for the employment of small numbers compared with those employed by the dominating triad of

TABLE No.1. No. EMPLOYED IN SOME INDUSTRIES IN NORTHUMBERLAND & DURHAM 1881 & 1911

PERSONS EMPLOYED

| INDUSTRY | NORTHUMBERLAND 1881 | NORTHUMBERLAND 1911 | NORTHUMBERLAND % INCREASE OR DECREASE | DURHAM 1881 | DURHAM 1911 | DURHAM % INCREASE OR DECREASE |
|---|---|---|---|---|---|---|
| Coal Mines. | 20,752 | 52,821 | +155 | 65,515 | 145,642 | +122 |
| Shipbuilding & Repairing | 4,410 | 13,676 | +210 | 10,757 | 29,245 | +172 |
| Chemicals & Alkali | 288 | 349 | +21 | 2,783 | 2,303 | -17 |
| Earthenware, China and procelain. | 645 | 861 | +33 | 637 | 383 | -40 |
| Glass | 328 | 344 | +5 | 2,884 | 2,405 | -17 |
| Manufacture of paper and cardboard. | 192 | 243 | +27 | 774 | 1,266 | +64 |
| Total population. | 434,086 | 696,893 | +61 | 875,166 | 1,369,860 | +56 |

industries. Amongst those new industries was the milling of grain, which was being imported in increasing quantities and had adequate berthing facilities at its command. A thriving, fishing industry which had developed out of the port of North Shields, and a timber trade which imported pit-props from the Baltic for the mines of Durham and Northumberland also developed.

Perhaps the only new development of any account which could be compared with the continued dominance of coal, shipbuilding, and mechanical engineering was the exploitation of Parsons' invention of the turbine. At this time the use of electricity was very limited, but Parsons had already seen that his turbine could be made to drive a dynamo, and his firm began to produce these new sources of power in a small way.

By 1914 he had increased the size of his turbo-generators, and by now they were running at over 2,500 r.p.m. and producing 11,000 k.W. of electricity. Further progress in this new industry had depended upon the, relatively slow, expansion of the consumption of electricity in Britain. Between the wars it was one of the few industries that had not, at one time or another, to halt its activities completely. Furthermore its establishment lead to the development of its own ancillary industries, and as early as 1901 a Belgian - Reyrolle - was producing electrical ancillary equipment at a factory in Hebburn. Today this industry is lead by these two concerns, Parsons and Reyrolles, both of which are prominent in the newly developing nuclear energy field. There are these, and many other signs, that the long dependence of Tyneside industry upon the three basic industries is being ended.

It may be convenient, at this point, to mention that the old infirmary had proved itself sadly inadequate by the turn of the 19th Century, and to commemorate the Diamond Jubilee of Queen Victoria a subscription for a new building was opened. In 1906 the new and present day Royal Victoria Infirmary was opened on a 10 acre site provided by the Corporation on the edge of the Town Moor.

<u>World War I and After.</u>

By the time this period of local hitory began the position of Tyneside industry and the fortunes of the area had become, by modern eyes, precarious. In 1911 coal-mining, shipbuilding, and engineering and allied industries employed over 50 % of the working population. Some other, once prominent, industries had declined to relative unimportance; others had completely left the area to settle in districts nearer their sources of raw material. The new port of Hull, at the mouth of the Humber, was now taking more and more of the export and import trade of the West Riding of Yorkshire; trade that had once passed through Tyneside. Communications had reached their peak of efficiency by the end of the 19th Century, and were now limited by the topography of the riverside from developing further, whilst the need for their rationalisation had not become as apparent as it has today.

By the immediate pre-war period the first signs of strain had appeared. But war came and the cracks were papered over. Generally, military and naval armament production boomed, and nowhere more spectacularly than in the factories and shipyards of Tyneside. The existence, prior to the war, of a large local armament industry gave the area a considerable start over the rest of the country towards wartime prosperity.

After the war, reconstruction of shipping and industry and the keen demand for coal kept prosperity high, and the area continued to thrive for some 3 years at its feverish wartime pitch. When the slump came in 1921-22 it seemed all the more severe because of the unusual prosperity of the preceding period. Shipbuilding declined almost to nothing once war time losses were replaced; and the replacements of old ships was not encouraged by the low freight rates of the time. By now the armaments industry, which before the war had sold products overseas as well as at home, was in demand no longer. The huge works with their specialist machines, + the skilled craftsmen, were not considered adaptable to peacetime production. Accompanying this general slump of industrial activity there was a fall in the demand for coal. Thus, within 18 months, much of the 3 great staple industries of the area came to a standstill. The downward spiral continued as the dependent ancillary industries contracted and, in many cases, unsuccessfully attempted to change their product. The pattern of collapse in general engineering seemed to be that the smaller the firm the less were its' resources to adapt themselves, and the sooner it closed down. The statistics of trade and employment for this period are meagre, but the 1921 Census figures for occupations are given in Table 2. on the following page. This table, it must be pointed out, covers the period before the slump had really got under way. The proportion of miners and metal workers (which includes all shipyard and engineering employees), and unskilled workers in 1921 was above the national average. The proportion of unskilled workers, and semi-skilled workers, such as plumbers and fitter's labourers was unusually high as compared with the rest of the country, but it was even higher in the towns of Hebburn and Jarrow, where they made up about one eigth of the workers of these towns. Again, in Jarrow and Wallsend, the metal working group formed about a third of the total workers. It is when such large proportions of people depend upon narrow groups of industrial activity for a livelihood that an economic recession, such as this, becomes so catastrophic.

Table 2. Working Population by Occupations - Tyneside 1921.

| | No. of Persons. | Percentage of total. |
|---|---|---|
| Coal-miners. | 38,676. | 11.4. |
| Metal-workers. | 60,738. | 17.9. |
| Commercial and Clerical work. | 53.483. | 15.8. |
| Transport and Communication. | 35,350. | 10.4. |
| Personal Service. | 32,353. | 9.5. |
| General Labourers or other unskilled workers. | 23,190. | 6.8. |
| Other occupations. | 95,434. | 28.1. |
| | 339,224. | 99.9 |

To aggravate matters further at this time there was locally a low proportion of women at work as compared with the country as a whole (Table 3).

Table 3. Percentage of Women Occupied - 1921. Tyneside and England and Wales.

| | %age of Married Women occupied. | Unmarried women(includes widows and divorced persons). %age | All women (aged 14 and over). %age |
|---|---|---|---|
| Newcastle. | 5.2. | 56.6. | 31. |
| Tynemouth. | 4.6. | 49.6. | 26. |
| Gateshead. | 3.9. | 52.0. | 26. |
| South Shields. | 3.4. | 43.4. | 21. |
| England and Wales | 9.1 | 58.9. | 34. |

When the local figures for 1921 for the numbers of people employed by different groups of industries are examined it is seen that a peculiar picture exists. Some industries are badly represented locally as compared with nationally. Local food processing was, for example, almost absent; there was only a relatively little grain milling, and food preservation and mass produced confectionery was non-existent. Some metal trades were surprisingly absent, such as tin box making, tube drawing, and the new industry centred around the internal combustion engine and the motor car. As could be expected there were no local textile industries and again, surprisingly enough, local manufacture of furniture, despite the large import of timber through the port, was non-existent.

Over-all the statement will bear repeating that, in depending, in the pre-war period, upon industrial "giants" making a narrow range of products, to the exclusion of the lighter industries and smaller concern, the locality had sown the seeds of its own undoing.

Towards the middle of the 20's trade and industrial activity revived somewhat and the blackest period seemed over, but this proved illusory. By 1928 it was estimated that over-all there were still 10-15% fewer jobs than there were people available for them. In this year there were 30,000 people registered as insured shipyard workers with 18,000 or 60% of them unemployed. In coalmining the effects were, partially, covered by spreading the available work out amongst the miners. The result, here, was not such severe unemployment, but rather, a fall in the average earnings, e.g. for the Northumberland miner from £210 per annum in 1920 to £124 per annum in 1928.

Throughout the 20's and early 30's this depressing pattern continued. Some years were better than others. Until the early 30's it had apparently been accepted, by almost everyone of influence in the country, that times although bad at the moment must inevitably change before long for the better. The fundamental weakness of the Tyneside industrial pattern was, of course, ignored by such thinking. Up until 1930 much of the rest of the country had fared better than Tyneside. However, Merseyside, South Wales, Clydeside, Teeside, and West Cumberland, were as badly, if not worse, hit, and together these areas became known as the "Depressed Areas". All these areas were affected in this way because of the same basic reason, namely too great a dependence upon a narrow industrial base. Until now, 1930, other great industrial regions, such as London, the Midlands and so on, had passed through the lean 20's relatively well. For the next 3 years, however, even they were to feel the sharp edge of the industrial recession.

At last there came a national realisation that to wait upon better times was simply not good enough. Social unrest was beginning to spread. Ellen Wilkinson had led a hunger march from Jarrow after the closing of Palmer's Yard had caused so much hardship in the town. More violent forms of civil strife broke out in South Wales, Clydeside, and West

Cumberland. At last, the evil effects, of prolonged unemployment and financial stringency upon the physical and moral well being of individuals, and upon the nation as a whole, became evident. A general feeling arose that a more active approach to the problem was needed, but at first attitudes towards it were mixed, and actions often misguided. Thus an attempt was made to provide a personal stimulus to gain employment by reducing the "dole", and imposing a stiff means test for unemployment assistance. This, in contemporary eyes, had another merit in that it helped to balance the current accounts of the Unemployment Insurance Fund, which was, by now, a £100,000,000 in debt. Of course, the position in an area like Tyneside was aggravated by such a "stimulus". There were simply too many people looking for a smaller total number of jobs. Work was not available no matter what the stimulus was. There had always been a greater or lesser degree of emigration from the North-East as the high birth rate had always produced a relative surplus of labour, except in exceptional conditions of full employment. In the early 1930's another misguided attempt was made to help by trying to encourage people to move from areas where jobs were short to other areas where they were comparatively plentiful. As far as Tyneside was concerned, this again was a mistake; it was simply flogging a local horse that, in the past, had been only too willing to follow this path.

By 1933 there were 103,400 people still unemployed in the Tyne Valley, and the new methods were obviously making very little impression upon this problem. It slowly began to be apparent that the "Depressed Areas", whilst most severely hit at the moment, had in common a long term peculiar difficulty to solve. It became gradually appreciated that methods applicable in other areas, to help improve the situation, would not necessarily apply in these special areas. In 1934 a Government Commission for the Special Areas was set up. The situation facing them was graphically described in the first report of the Commisioner:-

"There is a psychological factor which would appear to react unfavourably on these areas. The very fact that they are distressed not only reduces their power to attract industries, but to some extent reacts on the inhabitants themselves, who seem partially to have lost confidence in their own districts. This is evidenced by the difficulty in obtaining a moderate amount of finance locally to establish industries."

In 1935 "The Times" stimulated interest in a suggestion, which had been put forward by a local business man. He suggested that the Government should develop Industrial Trading Estates in the Special Areas, similar to the privately owned one already established at Slough. The Government would finance these and facilities would be let at low uneconomic rents to manufacturers willing to move into the area. There were many doubts on both sides of industry about this. Labour was reluctant to move into, what it considered, less skilled work than ship-building and heavy engineering. On the other hand, manufactuers were of the opinion that the local labour force had been so deeply affected by the psychological effects of the long depression, that it would be almost impossible for it to adapt itself to new skills. Again consumer goods industries were not attracted to an area where surplus consumer spending-power was almost non-existent. Nevertheless, the North East Development Board was set up in 1936 and by August of that year the new Team Valley Trading Estate was opened by the government-financed North Eastern Trading Estates Company. This was a completely novel venture, not only for Tyneside but for the nation as a whole, and it was watched with great interest over a wide area. Beginning slowly, but with increasing pace, new factories settled and expanded upon the new trading estate, and a more hopeful future began.

Naturally these factories were small and their total effect, at this time, upon the large unemployment problem was limited, but they soon progressed, and when rearmament began, the momentum soon gathered speed.

As in the past a deteriorating international situation caused local conditions to improve, and the period before the second World War was no exception. The Tyneside shipyards got new naval vessels to build, and the great engineering works at Scotswood and Elswick, which for the past 15 years had been only partially productive, started to work much more consistently. Coal production revived under the new impetus of rearmament and expanding industrial production, and by 1937, 25,000 extra miners were employed as compared with 1932. In the Tyne Valley as a whole unemployment fell from 103,000 in 1932 to 45,500 at the end of 1937. The increased prosperity of the population as a whole attracted newer consumer-goods industries to the factories of the trading estates, and the upward spiral was now well and truly launched. By the outbreak of World War II £2,000,000 had been spent in erecting new factories on the Team Valley Estate alone.

## World War II and after.

The War, as all wars have done in the past, produced boom conditions on Tyneside. Industries new and old turned to war production. Shipbuilding and armaments, already expanding, boomed feverishly, and to exploit the reserve of unemployed labour existing locally, a number of new armament factories were built. Between 1939 and 1945 over 3,000,000 tons of new ships were built in the yards of the Tyneside, and 30,000,000 tons of merchant and naval vessels were repaired there.

The post war Government had learnt, and profited by the economic lessons of the 1930's and the new political philosophy was determined to prevent the "Depressed Areas" arising again. The policy of diversifying industry in them was pressed forward, and was backed by legislative action such as the Distribution of Industries Act 1946. New firms were attracted to Tyneside and all the rearmament factories were rapidly converted to peace time production with much more skill and ingenuity, than was shown after World War I. This policy has continued in various disguises since then. The still relatively large reserve of labour existing locally, attracted industrial concerns wishing to expand who had found it impossible, under 'full employment' to find a labour force elsewhere.

Despite all this recent diversification and expansion it would appear that, even today, the industrial base of the Tyne Valley is still narrower, and more dependent upon a few specialised industries, than is the country as a whole. Years must still pass before sufficient new concerns are attracted to the area to radically alter this picture. Many of the newer light industries are in small units and their total effect upon the basic industrial structure is still marginal. The viability in the modern industrial state, of some of the very small concerns is doubtful. Some of the new factories are, however, local branches of large nation-wide combines, and these may give a certain amount of stability to the area if, in the future, hard times should come again. On the other hand these local branches may be the first to be closed if a national policy of retrenchment and consolidation became necessary.

Many of these new industries were attracted by existing local skills and raw materials and are, of course, engineering in character, but the pattern of this engineering is quite different to that of the past. The types are much more varied now and include an increasing proportion of concerns interested in the electrical and nuclear engineering fields. It is probably these latter two industries that will provide the basis of any substantial widening of the industrial structure in the future.

There are, however, other industries which have entered the area and appear to have become permanently established, although again their total effect is not great. There are signs that the chemical industry, and its associated plastics industry, is becoming re-established locally, and there has been some revival in glassware manufacture. It will be seen that many of these new products are indirectly associated with recent electrical engineering developments. There are, however, other independent industries which appear to have permanently settled down, and seem to be well established. These include such things as optical instruments, insulated cables, furniture, clothing, tobacco, and baking and confectionery. Nevertheless should severe strains arise in the national economy within the next decade, and before this increasing trend has had a chance to work any substantial effect, it may well be that the Tyneside will, again, suffer more severely than some other areas.

The industrial history of Tyneside has been outlined in some detail as it has, more than in most areas, a considerable bearing on the present local socio-economic situation. Such an old, and complex background, affects profoundly the attitude of employers and employees to any proposed change in the working pattern. For this reason the attitudes and trends, both past and present, must be understood before planning an Industrial Health Service. This historical outline should allow a closer understanding of many of the findings and of the proposals that follow hereafter for the development of such a Service.

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## Chapter 3.

## Outline Geography of the Survey Area.

Only the factors liable to influence the design and planning of an Industrial Health Service for the area are included in this chapter, and in chapter 4.

The survey area is roughly 17 miles long by 10 miles wide, and the River Tyne runs approximately through its centre. It lies partly in the administrative counties of Northumberland and Durham, i.e. those two counties in the extreme north east of England.

The Tyne is the northernmost of the three great rivers of the North East. Some 10 miles south from the mouth of the Tyne, the River Wear enters the sea passing through the shipbuilding city of Sunderland to do so. Thirty miles further south the River Tees enters its wide estuary after passing through the highly, and rapidly expanding, industrialised area of Teesside, with its enormous steel works and chemical plants. The River Tyne has two sources; the North Tyne rises in the Cheviot Hills, which form the border between England and Scotland, and which lie in the northernmost part of the county of Northumberland. The South Tyne rises in the moors of the Pennine Chain, which run in a north-south direction along the western borders of the two counties. These two streams join in a wide-floored valley at the foot of the hills, and from there the river runs almost due east. As it approaches the coast the valley become narrower and the banks more precipitous, and, at a point some 20 miles from its mouth, the river enters the industrialised area generally known as Tyneside.

The conglomeration of towns and villages, which make up Tyneside, stretch eastwards along both banks of the river, from a point some 20 miles from the sea, and they spread north and south from the banks for a variable distance. The principal individual concentrations of urban building are the twin cities of Newcastle and Gateshead, lying north and south of the river respectively, their centres being 14 miles inland. It is between these two cities that nearly all the direct crossings of the river are located. These two towns, and particularly Newcastle, form the geographical, social, cultural, communal and financial centre of the region. Down-stream from this centre the urbanisation on both banks has been haphazard and the present-day picture is one of patchy and sporadic development. This development has been dominated by the location of heavy industry along the narrow strip of flat land bordering the river. This factor will be referred to in more detail later. The development along the north bank eastwards, from the centre of the area has been more co area, has been more continuous than along the south.

The shipbuilding town of Wallsend abuts upon Newcastle to the east, and its own eastern boundary is formed by the County Borough of Tynemouth. This latter town is really an amalgamation of, the once separate, towns of North Shields and Tynemouth. The former, is largely an industrial and seaport town, and the latter until only 30 years ago, was the fashionable seaside and residential town of the north east; today its activities resemble more and more those of its neighbour. Since World War I this function of Tynemouth has been increasingly taken over by Whitley Bay, a town which lies along the North Sea coast to the immediate north of Tynemouth C.B. This town has, almost entirely, grown up in the last 35 years, and today is a thriving holiday resort and dormitory town.

Along the south bank from the centre towards the sea, development has been much less consistent and shows much more the effects of the inter-war depression. Felling, which lies to the immediate east of Gateshead, was originally a small mining village. It now contains many widely diversified, manufacturing industries. These represent, mostly, the multifarious activities of a single large industrial group - the Co-operative Wholesale Society. Further to the east, and adjoining each other, lie two geographically indistinct towns of Hebburn and Jarrow. Until recent times both these towns were completely dependent upon shipbuilding for their prosperity, and Jarrow, at one time, was largely dependent upon the single shipbuilding firm of Palmers. Today these two towns more than any other in the locality, show the effect of the lean years between the wars. Beyond them, and lying partly on the North Sea coast, is the County Borough of South Shields. This town is much more self-contained and less dependent upon Newcastle as the main centre of activity. Its distance from this centre gives it a sense of separation and individuality which is not apparent in any of the other towns of the area. Again it is almost self-contained industrially and has only a very small dormitory population. The influence of the natural centre of Tyneside upon South Shields is further weakened by the proximity of Sunderland, some 6 miles away to the south, which provides in its own right, many of the attractions that Newcastle provides for the other Tyneside towns.

Up-stream from the centre there has been much less development. Newcastle spreads its built-up area much further along the north bank than does Gateshead along the south. Beyond the western Newcastle boundary mining villages are scattered across the rural countryside, but upstream from Gateshead on the south bank, the rural countryside reaches almost to the river bank. The settled areas immediately west of Gateshead are Dunston, Whickham, and Swalwell, all of which were or are, pit villages, although today they all depend, to a greater or lesser degree, upon non-mining work elsewhere to provide employment. Beyond to the west of this latter area lies Blaydon. This is the largest, separate aggregate of population in the western end of the survey area. Originally a large mining village, Blaydon developed its own local industries on a flat piece of land near the river bank. These were mostly established half a century ago, and by modern standards their environmental conditions are poor. Recently, under a town planning scheme, much of the nearby marshy land has been drained, and developed as factory sites. Industry in the area of Blaydon, and the small village of Lemington on the opposite north bank of the Tyne, should expand considerably in the next few years. For this, and other reasons to be discussed, the immediate locality of Blaydon has been chosen for the founding of a pilot Industrial Health Service which will also serve as a demonstration project for a larger and more complex Industrial Health Service for Tyneside.

Further north and south of the Tyne the urban development has not been so dense. North of Newcastle, and divided from it by the common-land of the town moor, is the residential town of Gosforth. This, in fact, has become the fashionable suburb of Newcastle, although it is a separate administrative Urban District. A little industrialisation has begun on the periphery of Gosforth, providing convenient work-places for the people being rehoused by Newcastle in areas along the western border of this town. Further rehousing for Newcastle is going ahead in the Longbenton Urban District which lies to the immediate east of Gosforth, and some of the scattered villages in this area are becoming integrated within, the more continuous, new housing development. No industry of any size however, has yet entered this district.

The rest of the survey area to the north, beyond the immediate centre of Newcastle, and the urbanised riverside and coastal towns, is rich agricultural land. One village in the north west of this area, Ponteland, is growing rapidly and is becoming increasingly a dormitory town for Newcastle.

On the south bank beyond the urbanised and industrialised riverside the position is somewhat different, as the area does not stretch so far in this direction. The towns of Gateshead and Felling both extend to the survey boundary. There is in the south west a district composed of scattered mining villages separated by newly afforested fells, some peaks of which rise to over 600 feet.

Here, apart from mining, and allied industries such as coke ovens, there is no industry, other than some poor farming on the lower slopes of the hills. The south east corner of the survey area is flat rural country and separates Tyneside from the smaller urban concentration around Sunderland on the river Wear. This area lies completely within Boldon Urban District and there is here a scattering of small mining villages intermixed with the farms. There is one residential village - Whitburn - in the extreme south east whose unspoilt 18th Century charm is strongly in contrast with the general drabness and ugliness of the lower Tyne Valley surrounding it. Originally many more similar charming villages must have existed in the countryside of County Durham but the industrialisation of the 19th Century destroyed, or defaced, much of the beauty of the district, and little of it, apart from this single village, remains.

The land along the north bank of the Tyne rises steeply from the riverside to a plateau some 100-300 feet high, and this runs away northwards with only slight undulations. The only breaks in this feature are two deep narrow gulleys running from the north at right angles into the Tyne. The one joining the river just downstream of Newcastle town centre and the other joining the Tyne some 5 miles further to the east at Willington.

The topography of the south bank is quite different. Apart from a tidal mud flat separating Jarrow from South Shields there is a steeply rising river bank on this side also. The plateau feature of the North bank is, however, absent. Gateshead and Felling are built up the sides of a conical hill rising some 600 feet. To the west of Gateshead running from south to north, is the wide, flat steep-sided valley of the River Team, and to the west of this again is the beginning of the afforested fell country of the south west. This feature is broken only by the narrow valley of the River Derwent running from the south to enter the Tyne at Swalwell. East of Gateshead Fell there is a small flat undulating plateau similar to the one on the north bank, which runs away gradually into the farming country of County Durham in the south.

In the extreme east both Tynemouth and South Shields look out over the North Sea and are built on headlands rising some 200 feet above the river mouth. The effect that this peculiar topography has had upon the economic growth of Tyneside is considered further.

## References - Chapter 3.

Newcastle and Gateshead Chamber of Commerce (1954) "Industrial Tyneside" London.

Tyne Improvement Commission (1948) "Port of Tyne" London.

# Chapter 4.

# The Economic and Administrative Geography of Tyneside.

## The dominating influence of local topography.

As already stated the river Tyne runs from the west to the east, through the centre of the survey area, along a course of some 20 miles and it is flanked by steeply rising banks, never less than 50 feet high for the whole of this distance. At some points, such as the main crossing adjoining Newcastle and Gateshead, the banks rise to some 150 feet and fall almost perpendicularly into the river. At other points there is a flat intervening strip of land, between the waters-edge and the bank, with a maximum width of a quarter of a mile in places. As aresult of this peculiar terrain the growth of the shipbuilding industry and many of its ancillary undertakings was confined to this narrow, flat, riverside. Today, from the river mouth to a point some 17 miles from the sea, every flat piece of land of utilisable size, along the banks of the Tyne, is crowded with industrial concerns. Some of these factories lie in land otherwise undeveloped between the towns of the conurbation. In a few places, such as between Hebburn and Felling, factory fences keep out animals on grazing land at the top of the riverside cliff. It is mostly those industrial concerns to whom the facilities of the river are essential, that are located here. Naturally shipbuilding, ship-repairing, coal exporting, the timber trade, and the marine engineering industry are the activities mostly found in this crowded area. More recently they have been followed by grain milling, and oil storing and distribution. Stevedoring and warehousing also need to be near the waters' edge, but they have been helped, in their search for space, by the building of the two deep-water docks. The concentration of industry in this narrow space is much denser in the lower reaches of the Tyne than above the Newcastle-Gateshead bridges. Ship-building and shiprepairing yards are located, in a group, on both banks of the last 5 miles of the river. For this distance the stream has been dredged and sufficiently widened to allow large ships, of up to 50,000 tons, to be launched across it. This, at the moment, appears to be the upper limit of size. To allow the launching of larger ships, there would need to be large scale civil engineering projects to artificially widen the riverside plain. The stream itself cannot be widened further as both banks are occupied by industrial concerns. There would appear to be here an insuperable problem as housing and other building abut directly upon the inland boundaries of all the shipyards. Today rival shipbuilding firms on opposing banks must co-operate with each other in order to provide adequate space to allow launchings from the opposite side of the river. Even so, there is the occasional mishap when an extra large vessel after launching demolishes a building on the opposite bank before it can be controlled.

Whilst, by ingenious methods, it may be possible to raise the size of individual launchings, there does not appear to be any likelihood that the total number of people employed in local shipbuilding will increase substantially beyond the present figure. Any increase in production will come from better productive methods on the present restricted sites, and will not result in, for obvious reasons, any expansion of the present work force. On the contrary, the total number of shipbuilding workers may actually decline slightly with the increasing introduction of pre-fabrication techniques. The shiprepairing industry, does not depend so much upon the availability of land space for its expansion. Most of its work is done whilst the ships are afloat in the river, and will probably expand greatly. The increasing world shipping tonnage, particularly in oil tankers, has already made the Tyne the biggest single shiprepairing port in the Commonwealth. This trend will continue and for the shiprepairing industry it would appear that the total numbers employed will increase quite considerably during the coming years.

The influence of local topography on these industries has been expounded at some length. The fortunes of these two industries are a factor to be considered in the design and planning of any Industrial Health Service for Tyneside.

Communications.

The River Tyne dominates local communications. The lowest road crossing of the river is at Newcastle 14 miles from the sea. Below this bridge which carries the main North-South road, only vehicular and passenger ferries cross the river, and their service is uncertain during periods of bad weather. Some 9 years ago a pilot tunnel was driven to join Jarrow and Willington Quay, and after some considerable delay, owing to the discovery of unforeseen technical difficulties, it is now to be followed by a larger road tunnel. Over the whole area local communications are considerably hampered by the present lack of a river crossing lower than Newcastle. The main A.1 road runs through the very centre of the two largest towns in the area, and this main highway, which causes bad congestion in the East-West roads of the whole locality as well, is badly in need of diversion.

Above Newcastle the river crossings are fairly numerous, in fact there are four road bridges joining Newcastle and Gateshead within a mile of each other. The bridges themselves are for the most part highly inadequate for present day traffic. Beyond the Newcastle-Gateshead complex the next road bridge is four miles up-stream.

Road communications, as suggested, are completely inadequate for the present day burden thrust upon them by the high concentration of population, and by the concentration of heavy industry in the valley. The East-West roads, for the most part, run through the centres of the numerous towns and villages that make up the Tyneside conurbation. The roads on the south bank tend to be narrow and more tortuous than those on the North. The roads running east along both banks from the conurbation centre are the most inadequate, owing to the higher concentrations of industry and population to the east.

Between the World Wars an attempt was made to improve the speed and ease of road transport on Tyneside by building new roads running from east to west which avoided the built up areas and ran through the peripheral rural country. Today these roads are rapidly becoming overloaded with new traffic and the surrounding country-side is being rapidly built up by new housing and industrial expansion. In fact, without some further drastic attempt to solve the problem, these few modern roads will rapidly decline to the standard of the older ones.

The sites of the north-south roads are, of course, determined by the sites of the river crossings and the main Newcastle-Gateshead bridges carry the bulk of the local traffic in this direction. One bridge also carries the Great North Road with its through traffic from areas beyond the Tyne.

For the purposes of planning an Industrial Health Service rail communications can be ignored because of their lack of flexibility. The use of the river to provide means of communication for such a service should not be ignored however. The main, trauma-producing, industries lie along the river bank in the lower reaches of the river, and many of them abut directly upon the water's edge. The use of some direct shore-to-shore water transport, exclusive to the Health Service, will be considered further when the design of the service is outlined.

Local Administrative Areas.

The problem of the administrative boundaries has been briefly discussed when the choosing of the boundaries of the Survey Area was considered. A more detailed examination of the situation follows:- (See Map No.1.)

a) Local Government Areas.

| | Area in acres. | Estimated Population. 1955. |
|---|---|---|
| **i) County Boroughs.** | | |
| Newcastle. | 11,095. | 281,000. |
| Gateshead. | 4,470. | 113,200. |
| South Shields. | 4,874. | 107,800. |
| Tynemouth. | 1,579. | 67,000. |
| **ii) Municipal Boroughs.** | | |
| Wallsend (N'land) | 3,422. | 49,440. |
| Whitley Bay and Monkseaton (N'land) | 3,302. | 32,270. |
| Jarrow (Durham) | 1,697. | 29,170. |
| **iii) Urban Districts.** | | |
| Gosforth. (N'land) | 1,737. | 24,730. |
| Newburn. (N'land). | 4,649. | 24,730. |
| Longbenton (N'land). | 6,786. | 37,290. |
| Blaydon. (Durham). | 9,235. | 30,310. |
| Ryton. (Durham). | 5,145. | 13,690. |
| Whickham. (Durham). | | 23,180. |
| Felling. (Durham). | 3,349. | 26,190 |
| Hebburn. (Durham). | 1,554. | 23,570. |
| Boldon. (Durham). | 7,640. | 18,020. |
| **iv) Rural Districts.** | | |
| Castle Ward (N'land). | 82,829 | 16,130. |
| Total. | 153,363 ~~82,829.~~ | 917,820. |

Map No.1. (page 2 ) shows the location of each of these areas. The complexity of the situation is self-evident. It is made more complex, from a planning point of view, by the existence of "single tier" authorities, viz. County Boroughs, and "double tier" authorities viz. counties in relation to their municipal boroughs and rural and urban districts. The possibility of any future relationship between the existing health services of these authorities and any future Regional Industrial Health Service is examined at length elsewhere (Chapter 20 ,page 254 ).

b). National Health Service Areas.

i). Local Authorities Services.

These functions assigned to Local Authorities under Part III of the National Health Service Act 1946 are provided within the administrative boundaries outlined above, i.e. within the counties, and county boroughs, or subsidiary districts according to the function assigned by the Act.

ii). General Practioners Services.

The boundaries of the Local Executive Council areas coincide with the boundaries of the counties of Durham and Northumberland, and the county boroughs of Newcastle, Gateshead, Tynemouth and South Shields.

iii). Hospital Services.

The Survey Area lies completely within the administrative area of the Newcastle-upon-Tyne Regional Hospital Board. The United Newcastle Hospitals operate autonomously, without geographical restriction, within the rough area of the city of Newcastle.

iv) Regional Hospital Board - Hospital Areas. (4)

Within the area of the survey there are five District Hospital Management Committees as follows:-

| Completely within the Area. | No. of Hospitals. | Approx. population covered. |
|---|---|---|
| S.E.Northumberland. | 11. | 160,000. |
| South Shields. | 10. | 160,000. |
| Gateshead. | 7. | 170,000. |
| **Partially within the Area.** | | |
| Newcastle. | 14. | 390,000. |
| Sunderland. | 15. | 360,000. |

(Mental Hospitals are not included in this table).

The Sunderland district only encroaches to a minor degree on the extreme south-east part of the survey area and covers the Boldon Urban District. A part of the Newcastle Hospital Management Committee district lies outside the Survey Area, and covers mostly agricultural and moor land, to the north west. Internally, however, the Newcastle Hospital Management Committee boundary does not follow the county-county borough boundary, and part of its area in the Ryton district comes within the administrative county of Durham.

United Newcastle Upon Tyne Hospitals. (5)

| Hospital. | No. of beds. |
|---|---|
| a) Royal Victoria Infirmary. | 723. |
| b) Princess Mary Maternity Hospital. | 90. |
| c) The Babies Hospital. | 20. |
| d) Convalescent Home. | 97. |
| e) Newcastle Upon Tyne Dental Hospital. | 0. |
| | 930. |

There is no geographic localisation of these hospitals. No further comment is thought necessary.

In the light of this complexity the subject of the integration of these hospitals into any future Industrial Health Service is discussed at length elsewhere.

c). Factory Inspectorate Areas. (6)

The Factory Department of the Ministry of Labour and National Service works within its own separate administrative boundaries. Within the area of the survey there are two districts involved, namely the Newcastle and Gateshead Factory Inspectorate Districts. The former includes most of the county of Northumberland and covers all the north bank of the industrialised Tyneside conurbation, as well as the outlying industrial towns such as Blyth and Hexham which are not within the Survey Area. The Gateshead area includes, paradoxically, the great shipbuilding centre of Sunderland, as well as all the South Tyneside towns and much of the industrialised hinterland of the County of Durham.

The District Factory Inspectorate are responsible for the general inspecting duties within these separate areas, but the Medical Inspectorate is organised quite differently. He, a single inspector, is based at Leeds, and his area of responsibility covers both the East and West Riding of Yorkshire, Tyneside, Wearside and Teeside, as well as all the administrative counties of Durham and Northumberland.

As suggestions have, in the past, been made about the possible fusion of the functions of the Factory Inspectorate and any future Industrial Health Service, the above local arrangements have been set out in detail and are discussed in relation to this proposition later.

Board of Trade Areas. (7)

The statistical divisions of the Board of Trade for Research Purposes have already been given considerable attention. Internally this area is divided into 4 sub-divisions - North Tyne East, North Tyne West, South Tyne East, South Tyne West. The North/South internal division following the local government boundaries between Wallsend and Newcastle-Longbenton on the north bank, and between Felling and Hebburn-Boldon on the south bank. It is illustrated on Map No.1.and 2. These four sub-divisions of the Survey Area will be used in later chapters in considering much of the data which has been assembled about industrial establishments and their working populations.

Census Sub-Divisions. (8)

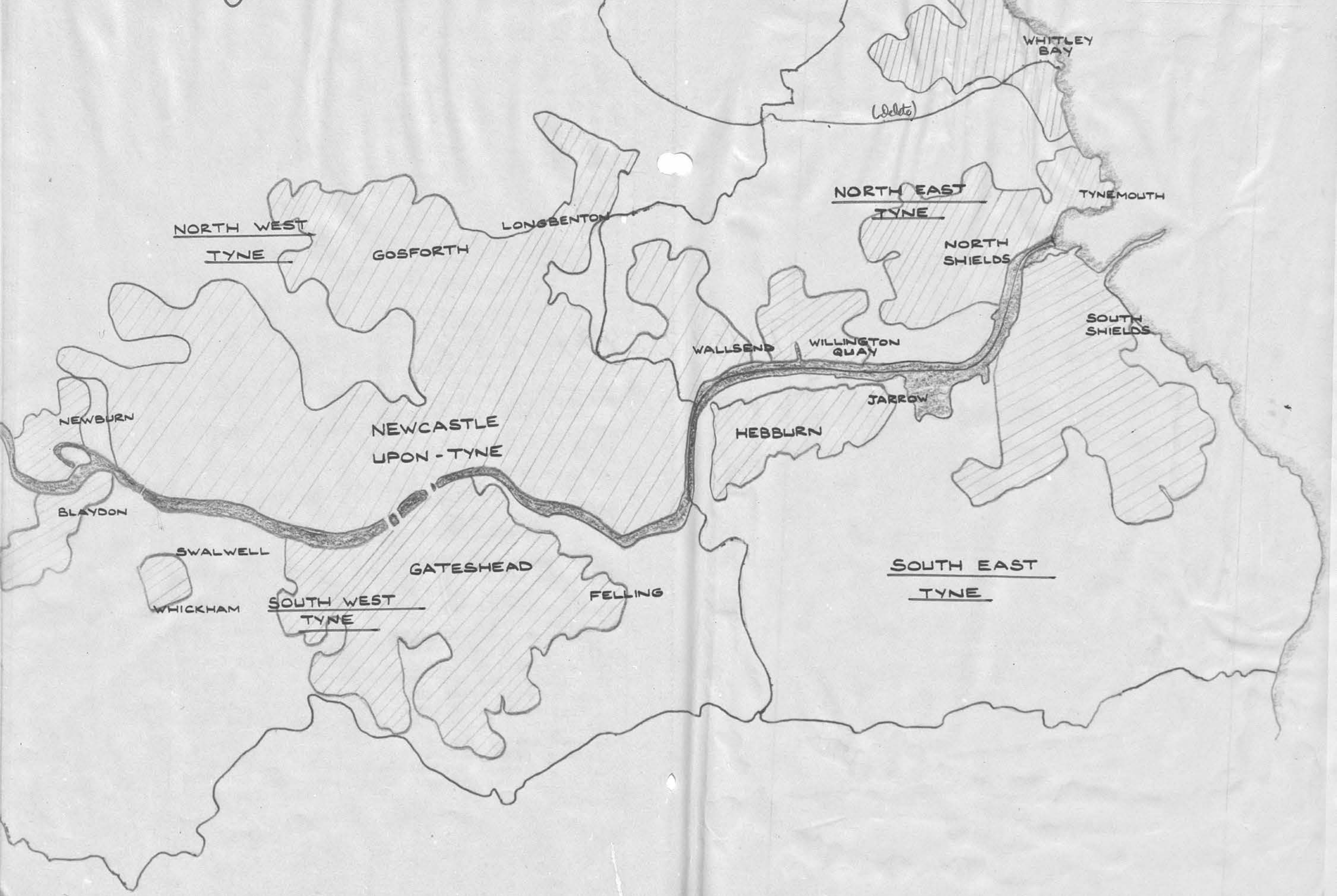
The Registrar General's Conurbation is sub-divided on yet another basis. There are three types of area classified by him according to their social functions, and to a lesser extent according to the age of their development, viz. I - commercial and administrative, II - industrial and older residential, and III - newer residential areas. The boundaries and description of these sub-divisions are shown on Map No. 3, page 39 , and table No.4, page 39 .

Much of the available vital statistical data of the conurbation is presented under breakdowns by these areas. Appropriate illustrations of local conditions are presented from place to place using this data, and these sub-divisions.

In succeeding chapters most of the data to be presented will be treated geographically within one or other of these latter two types of administrative sub-divisions. It is unfortunate that for present purposes no common geographic sub-division of the survey area can be found which will allow all the available and necessary data to be treated uniformly. It will be seen that the difficulties encountered in obtaining detailed, accurate data about the working population makes it inevitable that two separate geographical standards of analysis be used. The census data is used mostly for descriptive rather than planning purposes, and no great harm comes from using different geographic areas although the clarity of the picture is at times obscured as a result.

Map No. 2.

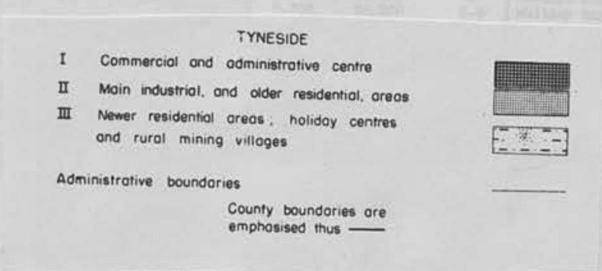
BOARD OF TRADE AREAS (4)



39 B

Map. No.3.

# TYNESIDE CONURBATION (8)

References - Chapter 4.

General References.

# Table No. 4.

**CONSTITUTION of the CONURBATION and its DIVISIONS and SUB-DIVISIONS by LOCAL AUTHORITY AREAS and WARDS** (8) **TYNESIDE**

Note:- for a pictorial presentation see map [redacted]. No. 3.

| Division and Sub-division | Description of Area | 1951 Acreage | 1951 Population | 1951 Persons per Acre | Areal Constitution: Local Authority Areas (N.B. Wards are printed in *italic type*) |
|---|---|---|---|---|---|
| **TYNESIDE** | | **57,688** | **835,533** | **14.5** | |
| **I** | **COMMERCIAL AND ADMINISTRATIVE CENTRE** | **461** | **10,363** | **22.5** | |
| | | 461 | 10,363 | 22.5 | Newcastle upon Tyne C.B., *St. Nicholas.* |
| **II** | **MAIN INDUSTRIAL AND OLDER RESIDENTIAL AREAS** | **13,846** | **407,001** | **29.4** | |
| **II A** | **Northern** | **4,745** | **180,412** | **38.0** | |
| | | 4,745 | 180,412 | 38.0 | Newcastle upon Tyne C.B., *Armstrong, Arthur's Hill, Benwell, Byker, Elswick, Heaton, Jesmond, St. Anthony's, St. Lawrence, Sandyford, Stephenson, Westgate.* |
| **II B** | **North Eastern** | **1,919** | **41,423** | **21.6** | |
| | | 1,299 | 28,138 | 21.7 | Tynemouth C.B., *Dockwray, Linskill, Percy, Trinity.* |
| | | 620 | 13,285 | 21.4 | Wallsend M.B., *Carville, Hadrian, Howdon, Willington Quay.* |
| **II C** | **Southern** | **3,894** | **97,527** | **25.0** | |
| | | 2,371 | 72,460 | 30.6 | Gateshead C.B., *Central, East Central, North, North East, North West, West, West Central.* |
| | | 908 | 13,416 | 14.8 | Felling U.D., *Central, North, Pelaw, West.* |
| | | 615 | 11,651 | 18.9 | Whickham U.D., *Dunston.* |
| **II D** | **South Eastern** | **3,288** | **87,639** | **26.7** | |
| | | 1,899 | 59,209 | 31.2 | South Shields C.B., *Beacon, Bents, Brinkburn, Deans, Hadrian, Rekendyke, Tyne Dock, Victoria.* |
| | | 882 | 18,924 | 21.5 | Jarrow M.B., *Central, East, Grange, Springwell, West.* |
| | | 507 | 9,506 | 18.7 | Hebburn U.D., *Central, East, North, West.* |
| **III** | **NEWER RESIDENTIAL AREAS; HOLIDAY CENTRES AND RURAL MINING VILLAGES** | **43,381** | **418,169** | **9.6** | |
| **III A** | **Northern** | **28,545** | **281,533** | **9.9** | |
| | | 5,889 | 100,949 | 17.1 | Newcastle upon Tyne C.B., *Dene, Fenham, Kenton, Scotswood, Walker, Walker Gate.* |
| | | 3,380 | 38,426 | 11.4 | Tynemouth C.B., *Chirton, Collingwood, Cullercoats, Preston, Tynemouth.* |
| | | 2,802 | 35,393 | 12.6 | Wallsend M.B., *Buddle, Holy Cross, Northumberland, Wallsend, Willington.* |
| | | 1,737 | 24,483 | 14.1 | Gosforth U.D. |
| | | 6,786 | 28,066 | 4.1 | Longbenton U.D. |
| | | 4,649 | 21,956 | 4.7 | Newburn U.D. |
| | | 3,302 | 32,260 | 9.8 | Whitley Bay U.D. |
| **III B** | **Western** | **5,459** | **11,497** | **2.1** | |
| | | 5,459 | 11,497 | 2.1 | Whickham U.D., *whole except Dunston.* |
| **III C** | **Southern** | **9,377** | **125,139** | **13.3** | |
| | | 2,099 | 42,579 | 20.3 | Gateshead C.B., *East, South, South Central.* |
| | | 2,975 | 47,389 | 15.9 | South Shields C.B.. *Cleadon Park, Harton, Horsley Hill, Marsden, Simonside, Westoe, West Park.* |
| | | 815 | 9,711 | 11.9 | Jarrow M.B., *Primrose, Simonside.* |
| | | 2,441 | 11,868 | 4.9 | Felling U.D., *Coldwell, East, South.* |
| | | 1,047 | 13,592 | 13.0 | Hebburn U.D., *Monkton, South, Victoria.* |

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## Chapter 5.

### The Population of Tyneside.

Tyneside people are colloquially known as "Geordies". The exact definition of a "Geordie" is a perpetual source of local controversy. One body of opinion states that all people born in the land of the old kings of Northumbria, one of whom was called Geoderic, are the only true "Geordies". A narrower definition confines them to the immediate locality of the old town of Newcastle, where George Stephenson, who first gave fame to Tyneside, had his locomotive works. Be that as it may, the local dialect, legends and culture, impart a deep sense of community to local inhabitants, and the "outsider" can be easily classed as someone other than a "Geordie". The obvious influences that produce this sense of local community are many, and most people are consciously aware of them, but there are many influences much less obvious, the result of local geography and history which, perhaps, give a greater strength to this regional feeling and culture.

The unity of Tyneside, in the geographical sense has already been outlined. The north east is aware of its, until-recent, isolation from the more fortunate southern parts of the country. The slower pace of local industrialisation in the late 18th and early 19th Century did not obliterate, as elsewhere, the link with the harsh life of the bleak and barren border marches.[1] Even the sad inter-war period, it was sensed, was relatively easier than had been the centuries preceding the Industrial Revolution. Local people are aware [redacted], and are intensely proud, that their counties were once the centre of early British Christian culture. More recently, when the prosperity of Victorian and Edwardian times passed into the depression of the 20's and 30's, hardship affected nearly the whole community, and not just, as elsewhere, an unfortunate minority. This sense of facing common difficulties reinforced the great sense of community always present amongst local people.

Relative isolation and the transformation into a centre of high industrial skills have combined, with these other influences, to produce the local character. The "Geordie" is reserved, almost suspicious, towards "foreigners". Once he accepts them he becomes open, frank, even forthright, and his reserve gives way to warmhearted hospitality. He is dogged, almost to the point of stubborness, and yet when he becomes convinced of the common sense soundness of some new proposal he tackles it with a resolution and adaptability which is unique. Behind all these qualities lies the deep pride of the creative craftsman who is conscious, perhaps too conscious, of the past achievements of the Tyneside industry, which once led the world with its many inventions.

Some of the statistical discussion, of the local population and local conditions, which follows has no immediate application to the planning of an Industrial Health Service for the Region. As, however, such a service cannot be planned, or established, in complete isolation from the rest of communal life and activity, it is considered that such background data should be considered in order to provide for the sound planning and operation of such a service.

A. The Geographical Distribution of Population within the Survey Area.

The total population of England and Wales in 1955 was estimated at 44,441,000 of which 917,820 live within the area of this survey. 2 This represents just under 2% of the National population and about one-third of the population in the Registrar General's Northern Region.

The 1955 estimated population for the subdivisions of the survey area is shown on table No. 5, page 41, ~~and on page~~ 2 The Census 3 population in 1951 for the conurbation is shown for comparative purposes on table No. 4, page 39. From table 5, page 41, it will be seen that the total survey area population is 917,820 of which 839,670 live within the census conurbation boundaries. Thus only 78,150 or 8.5 per cent of the survey area population live outside the conurbation area. The fullest vital statistical data is available for the Census Conurbation alone, and most of this comes from the Registrar General's annual reports and from the 1951 Census Reports. This material will be used to illustrate the broad pattern of the Tyneside population.

It is suggested that the picture shown by the data for the conurbation alone reflects accurately enough, for general descriptive purposes, the corresponding picture for the survey area as a whole, (when the small proportion of the population who live outside the Conurbation, but within the survey area is considered). To support this contention some basic vital statistical data for the conurbation area, and for these unincluded areas (i.e. those outside the conurbation yet within the survey area), is shown in table No. 6, 4 page 41. There are a few wide variations in the data for these two types of area (e.g. between the crude death rate in Castle Ward and the conurbation as a whole); however, the numbers involved in the non-conurbation districts are

## TABLE No.5. ESTIMATED POPULATION OF SURVEY AREA - 1955

| AREA | ESTIMATED POPULATION (MID - 1955) |
|---|---|
| England & Wales | 44,441,000 |
| Tyneside Conurbation | 839,670 |
| **Northumberland** | |
| Newcastle upon Tyne C.B. | 281,000 |
| Tynemouth. C.B. | 67,000 |
| Gosforth. U.D. | 24,730 |
| Longbenton. U.D. | 37,290 |
| Newburn U.D. | 24,730 |
| Wallsend. M.B. | 49.440 |
| Whitley Bay. M.B. | 32,270 |
| **Durham** | |
| Gateshead C.B. | 113,200 |
| South Sheilds. C.B. | 107,800 |
| Felling U.D. | 26,190 |
| Hebburn. U.D. | 23,570 |
| Jarrow. M.B. | 29.170 |
| Whickham. U.D. | 23.180 |
| **District outside Conurbation but within Survey Area** | |
| Blaydon U.D. | 30,310 |
| Boldon. U.D. | 18,020 |
| Ryton. U.D. | 13,690 |
| Castle Ward R.D. | 16,130 |
| | Total 78,150 |

Grand Total = 917, 820 people.

Table No. 6.

Some vital statistical Data for sub-divisions of the Survey Area. (4)

| Sub-Area. | Crude Birth Rate. | Crude Death Rate. | Infant Mortality Rate. |
|---|---|---|---|
| Tyneside Conurbation. | 17.3 | 11.7 | 31. |
| | County of Durham. | | |
| Gateshead C.B. | 17.0 | 11.9 | 31. |
| South Shields C.B. | 18.1 | 11.5 | 34. |
| Felling U.D. | 17.0 | 12.1 | (18). |
| Hebburn U.D. | 21.2 | 10.3 | (38). |
| Jarrow M.B. | 21.4 | 10.7 | 37. |
| Whickham U.B. | 15.5 | 12.3 | (42). |
| Blaydon U.D.) outside | 16.2 | 11.3 | (24). |
| Boldon U.D. ) conur- | 17.1 | 11.2 | (29). |
| Ryton U.D. ) bation. | 14.4 | 12.3 | (36). |
| | County of Northumberland. | | |
| Newcastle upon Tyne C.B. | 16.8 | 12.4 | 34. |
| Tynemouth C.B. | 17.2 | 12.9 | 41. |
| Gosforth U.D. | 16.8 | 15.8 | (29). |
| Longbenton U.D. | 17.7 | 8.8 | 35. |
| Newburn U.D. | 17.6 | 11.7 | (25). |
| Wallsend M.B. | 18.9 | 10.4 | 28. |
| Whitley Bay U.D. | 12.9 | 12.5 | (12). |
| Castle Ward R.D. (Outside conurbation) | 15.6 | 21.2 | (28). |

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No. 7.

**Table [illegible] - POPULATION 1921-1951 and Intercensal Variations** 3

**TYNESIDE**

Notes: - (1) All figures relate to the areas as constituted in 1951 with the exception of those marked ø ([redacted]).
(2) Deaths of non-civilians occurring between 3rd September, 1939, and 31st December, 1949, are not taken into account in column (1).

| Administrative Area | POPULATION | | | | | | | Increase or Decrease (-) | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1921 | 1931 | | | 1951 | | | 1921-1931 | 1931-1951 | | | |
| | | | | | | | | | | Per cent. | | |
| | Persons | Persons | Males | Females | Persons | Males | Females | Per cent. | Amount | Total | By Births and Deaths | Balance |
| a | b | c | d | e | f | g | h | i | j | k | l | m |
| **ø TYNESIDE** | **815,642** | **827,091** | **404,004** | **423,087** | **835,533** | **400,084** | **435,449** | **1.4** | **8,442** | **1.0** | **9.3** | **-8.3** |
| **ø Durham (pt.)** | **352,297** | **346,392** | **170,952** | **175,440** | **321,802** | **154,978** | **166,824** | **-1.7** | **-24,590** | **-7.1** | **9.6** | **-16.7** |
| Gateshead C.B. | 126,629 | 124,545 | 61,008 | 63,537 | 115,039 | 55,451 | 59,588 | -1.6 | -9,506 | -7.6 | 10.3 | -17.9 |
| ø South Shields C.B. | 118,560 | 113,185 | 54,805 | 58,380 | 106,598 | 50,555 | 56,043 | -4.5 | -6,587 | -5.8 | 8.6 | -14.4 |
| Felling U.D. | 26,333 | 27,267 | 13,671 | 13,596 | 25,284 | 12,312 | 12,972 | 3.5 | -1,983 | -7.3 | 9.4 | -16.7 |
| Hebburn U.D. | 24,150 | 24,119 | 12,495 | 11,624 | 23,098 | 11,339 | 11,759 | -0.1 | -1,021 | -4.2 | 12.3 | -16.5 |
| Jarrow M.B. | 36,734 | 35,747 | 18,006 | 17,741 | 28,635 | 13,813 | 14,822 | -2.7 | -7,112 | -19.9 | 8.4 | -28.3 |
| Whickham U.D. | 19,891 | 21,529 | 10,967 | 10,562 | 23,148 | 11,508 | 11,640 | 8.2 | 1,619 | 7.5 | 10.1 | -2.6 |
| **Northumberland (pt.)** | **463,345** | **480,699** | **233,052** | **247,647** | **513,731** | **245,106** | **268,625** | **3.7** | **33,032** | **6.9** | **9.1** | **-2.2** |
| Newcastle upon Tyne C.B. | 277,033 | 286,260 | 138,774 | 147,486 | 291,724 | 138,977 | 152,747 | 3.3 | 5,464 | 1.9 | 8.5 | -6.6 |
| Tynemouth C.B. | 64,909 | 65,919 | 31,983 | 33,936 | 66,564 | 31,820 | 34,744 | 1.6 | 645 | 1.0 | 10.1 | -9.1 |
| Gosforth U.D. | 15,844 | 18,239 | 8,120 | 10,119 | 24,483 | 11,273 | 13,210 | 15.1 | 6,244 | 34.2 | 8.1 | 26.1 |
| Longbenton U.D. | 19,954 | 20,674 | 10,424 | 10,250 | 28,066 | 13,955 | 14,111 | 3.6 | 7,392 | 35.8 | 12.2 | 23.6 |
| Newburn U.D. | 18,447 | 19,130 | 9,731 | 9,399 | 21,956 | 10,764 | 11,192 | 3.7 | 2,826 | 14.8 | 12.1 | 2.7 |
| Wallsend M.B. | 42,995 | 44,587 | 22,790 | 21,797 | 48,678 | 23,736 | 24,942 | 3.7 | 4,091 | 9.2 | 14.0 | -4.8 |
| Whitley Bay U.D. | 24,163 | 25,890 | 11,230 | 14,660 | 32,260 | 14,581 | 17,679 | 7.1 | 6,370 | 24.6 | -0.1 | 24.7 |

No. 8.

**Table [illegible] - POPULATION 1871-1951 and Intercensal Variations** 3

**TYNESIDE**

Note:- The figures for earlier censuses have been adjusted to refer to the present area of the conurbation but for 1931 and preceding years it is not possible to give truly comparable figures owing to boundary changes in 1951, 1937, 1936, 1935, 1933, 1921, 1912, 1901, 1896, 1887 and 1884. The populations affected in these changes, details of which are given in the relevant Census Reports, were relatively small.

| Date of Census | Population (Acreage 57,688) | Intercensal increase or decrease (-) | |
|---|---|---|---|
| | | Amount | Per cent. |
| 1871, April 2/3 | 346,048 | | |
| 1881, April 3/4 | 425,855 | 79,807 | 23.1 |
| 1891, April 5/6 | 550,872 | 125,017 | 29.4 |
| 1901, March 31/April 1 | 677,884 | 127,010 | 23.1 |
| 1911, April 2/3 | 761,494 | 83,610 | 12.3 |
| 1921, June 19/20 | 815,642 | 54,148 | 7.1 |
| 1931, April 26/27 | 827,091 | 11,449 | 1.4 |
| *Mid-1939 estimate* | 825,390 | | |
| 1951, April 8/9 | 835,533 | 8,442 | 1.0 |

No.9

Table 8. - Population Change Mid-1931 to Mid-1951 (3)

England and Wales, Tyneside and Selected Areas

| Year | Mid-year Estimates of Resident or Civilian Population(a) (thousands) | | | | | | England and Wales, Total Population |
|---|---|---|---|---|---|---|---|
| | Type of Population Estimate | Tyneside | Selected Areas of Tyneside | | | England and Wales | |
| | | | Newcastle upon Tyne C.B. | Gosforth U.D., Longbenton U.D., Newburn U.D., Whitley Bay U.D. | Remainder of Conurbation | | |
| 1931 | (b) Resident Population | 831 | 287 | 84 | 460 | 39,988 | |
| 1939 | " " | 825 | 293 | 90 | 442 | 41,460 | 41,642 |
| 1940 | Resident Civilian Population | 750 | 256 | 89 | 405 | 39,889 | 41,862 |
| 1941 | " " " | 733 | 254 | 85 | 394 | 38,743 | 41,748 |
| 1942 | " " " | 723 | 254 | 85 | 384 | 38,243 | 41,897 |
| 1943 | " " " | 716 | 255 | 85 | 376 | 37,818 | 42,259 |
| 1944 | " " " | 739 | 263 | 87 | 389 | 37,785 | 42,449 |
| 1945 | " " " | 750 | 266 | 89 | 395 | 38,157 | 42,636 |
| 1946 | (c) " " " | 797 | 283 | 96 | 418 | 40,595 | 42,700 |
| 1947 | " " " | 808 | 288 | 99 | 421 | 41,786 | 43,050 |
| 1948 | Resident Population | 834 | 294 | 104 | 436 | 43,296 | 43,502 |
| 1951 | " " | 835 | 292 | 107 | 436 | 43,800 | 44,008 |

(a) The mid-year estimates for the years 1940 to 1947 inclusive do not include the Armed Forces stationed in the areas concerned. The estimates for 1931 and 1951 differ slightly from the census counts partly owing to the differences in date but largely because the census counts make no adjustments for residents absent from their homes on census night.

(b) Approximate adjustment has been made to the 1931 figures to take account of boundary changes and to render them comparable with the figures for 1939 and subsequent years.

(c) Published figures multiplied by 0.9963, representing revision of estimates after publication.



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Table 10 - Percentage increase in Population in Intercensal Periods 1871/1951. 3 (England and Wales (Conurbation.

| Period. | England and Wales. | Greater London. | South East Lancashire. | West Midlands. | West Yorkshire. | Merseyside. | Tyneside. |
|---|---|---|---|---|---|---|---|
| 1871/1881. | 14.4. | 22.6. | 21.6. | 17.1. | 19.2. | 19.4. | 23.1. |
| 1881/1891. | 11.7. | 18.2. | 12.3. | 11.8. | 11.1. | 10. 2. | 29.4. |
| 1891/1901. | 12.2. | 16.8. | 11.8. | 16.9. | 8.1. | 13.4. | 23.1. |
| 1901/1911. | 10.9. | 10.2. | 10.0. | 10.2. | 4.3. | 12.3. | 12.3. |
| 1911/1921. | 5.0. | 3.2. | 1.4. | 8.5. | 1.5. | 9.2. | 7.1. |
| 1921/1931. | 5.5. | 9.7. | 2.8. | 9.0. | 2.6. | 6.6. | 1.4. |
| 1931/1951. | 9.5. | 1.6. | 0.2. | 15.7. | 2.3. | 2.7. | 1.0. |

from being the highest to almost the lowest, of all the nation's conurbations. When the size of the decennial increase over the last 30 years is compared with similar figures for the other conurbations, and for the whole country, the position is even more striking. See Table 10. These figures suggest that, allowing for the local birth and death rates during this period, there must have been, particularly between the Wars, a considerable amount of migration away from Tyneside.

Within the conurbation the changes in population for the sub-divisions over these 30 years are shown in Table 7. During this period the population of the north bank communities rose by some 33,000 whilst those of the south bank fell by some 24,000. This happening could be explained by a movement of population within the area. When a natural increase of population of approximately 9% is allowed for, however, the pattern of change during these years shows that the north bank communities barely held their own natural increase, and the south bank was being depopulated at an alarming rate. Nevertheless there was a definite change of place of residence within the conurbation by part of the population. This fraction moved into the newly developing middle-class residential areas of Gosforth, Longbenton, Newburn and Whitley Bay (See Table 9). From Gateshead, Felling, Jarrow, + South Shields, however, people were leaving the area altogether, and from Jarrow in particular, where 28.3% of the population left between 1931 and 1951 (Table 7).

The situation in the towns on the south bank may actually have gone much further in the middle 30's than these figures show. There would not appear to have been any continuation of this trend since the war (Table 9), in fact some of those who left the area in the bad times would appear to have returned. The figures for the intervening war years should not be given too much importance as they do not include people away from home in the Armed Forces, nor women and children who were evacuated under the Air Raid Precautions scheme.

Since 1948 the figures of the estimated population for most sub-divisions of the area have changed very little, and thus now in 1957 it is probably safe to say that the emigrative trend has almost stopped. Movement to the outer urban districts, however, seems to have started again since 1948. The effect of the large local government re-housing plans do not show on these tables, as they mostly take place within the separate local government boundaries.

All these fluctuations reflect the recent history of shipbuilding and engineering industries, and particularly their effect upon the towns on the

Table No. 11. **Estimated Home Population by Sex and Age, Mid-year 1955.**

**England & Wales, and Northern Region.** (2)

(In '000,s)

| | | All Ages. | 0 - | 5 - | 15 - | 25 - | 35 - | 45 - | 55 - | 65 - | 75 and over. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ENGLAND & WALES. | M. | 21,389. | 1,682. | ,3447. | 2,737 | 3,147. | 3,092. | 3,102. | 2,149. | 1,381. | 652. |
| | F. | 23,052. | 1,601. | 3296. | 2,804. | 3,176. | 3,188. | 3,243. | 2,669. | 1,962. | 1,113. |
| NORTHERN REGION. | M. | 1,551. | 133. | 256. | 212. | 233. | 210. | 215. | 150. | 98. | 44. |
| | F. | 1,609. | 127. | 246. | 215. | 228. | 211. | 218. | 177. | 125. | 62. |
| Tyneside Conurbation. | M. | 402. | 35. | 65. | 50. | 63. | 56. | 57. | 40. | 25. | 11. |
| | F. | 438. | 34. | 64. | 58. | 64. | 58. | 61. | 49. | 34. | 16. |
| Remainder of Northern. | M. | 1,149. | 98. | 191. | 162. | 170. | 154. | 158. | 110. | 73. | 33. |
| | F. | 1,171. | 93. | 182. | 157. | 164. | 153. | 157. | 128. | 91. | 46. |

No. 12

Table I - Population Distribution by Age [redacted]. (3)

Tyneside.

| | Percentage Distribution by Age. | | | | |
|---|---|---|---|---|---|
| | Conurbation. | | Divisions. | | |
| | 1931. | 1951. | 1951. | | |
| | Persons. | Persons. | Persons. | | |
| | | | I. | II. | III. |
| | a. | b. | c. | d. | e. |
| All Ages. | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| 0/4 | 8.6 | 9.2. | 8.6 | 9.5 | 9.0 |
| 5/14 | 19.4 | 14.3 | 10.3 | 13.8 | 14.9 |
| 15/24 | 17.4 | 13.4 | 13.6 | 13.7 | 13.1 |
| 25/34 | 15.5 | 15.4 | 17.7 | 15.8 | 14.6 |
| 35/44 | 13.3 | 14.5 | 13.8 | 14.1 | 15.0 |
| 45/54 | 11.6 | 13.4 | 13.9 | 12.9 | 13.9 |
| 55/64 | 8.5 | 10.1 | 11.1 | 10.1 | 10.2 |
| 65 and over. | 5.7 | 9.7 | 11.0 | 10.1 | 9.3 |
| | ~~72.0~~ | ~~76.5~~ | | | |
| All ages 15 and over. | 72.0 | 76.5. | 81.1. | 76.7. | 76.1 |
| Females per 1,000 males. | 1,047 | 1,088 | 988 | 1,080 | 1,099. |

Table 3 - Percentage Distibutions of Population by Age ~~and Proportions Married~~. (3)

England and Wales
Conurbations.

| | Percentage Distribution by Age. | | | | | | |
|---|---|---|---|---|---|---|---|
| | England and Wales. | Greater London. | South East Lancashire. | West Midlands. | West Yorkshire. | Merseyside. | Tyneside. |
| All Ages. | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| 0/4 | 8.5 | 8.1 | 8.6 | 8.8 | 8.5 | 9.7 | 9.2 |
| 5/14 | 13.7 | 12.5 | 13.3 | 15.1 | 12.7 | 15.7 | 14.3 |
| 15/24. | 12.9 | 12.1 | 11.9 | 12.9 | 11.7 | 14.2 | 13.4 |
| 25/34 | 14.5 | 15.3 | 14.5 | 15.7 | 14.2 | 14.3 | 15.4 |
| 35/44 | 15.3 | 16.6 | 15.7 | 15.7 | 15.5 | 14.5 | 14.5 |
| 45/54 | 13.7 | 14.3 | 14.4 | 13.3 | 14.8 | 12.7 | 13.4 |
| 55/64 | 10.4 | 10.5 | 11.0 | 9.4 | 11.4 | 9.5 | 10.1 |
| 65 and Over | 11.0 | 10.6 | 10.6 | 9.1 | 11.2 | 9.4 | 9.7 |
| All ages 15 and over. | 77.8 | 79.4 | 78.1 | 76.1. | 78.8 | 74.6. | 76.5. |

Tyneside in 1951 (1,088 females to 1,000 males) is probably the result of better local economic conditions (Table 12). In the bad inter-war years many single women left home in their late teens and early twenties to seek work, particularly in domestic service, in other parts of the country. (6) In common with other types of emigration discussed this process would seem to have considerably decreased by 1951, and would partially account for the larger proportion of females now in the area. This trend is well illustrated by the population figures for Jarrow in 1931 and 1951.

| | 1931. | 1951. |
|---|---|---|
| Males. | 18,006. | 13,813. |
| Females. | 17,741. | 14,872. |

There are, however, areas particularly on the south bank, where the male-female ratio of the population is still comparatively low, Hebburn and Whickham (Table 7) are particular examples of the situation. Despite these old local influences the present day proportion of women to men in the conurbation, as a whole, is slightly higher than the similar national proportion which is 1,082 women to 1,000 men.

D. <u>Social Class Structure within the Conurbation.</u> (3)

Table 14 shows the social class structure of Tyneside in 1951 compared with that of England and Wales (See also Appendix Table 6). There are, locally, proportionately fewer occupied and retired males in social classes I, II and IV and more of them in social classes III and V. These latter two groups include the skilled artisans and the unskilled manual workers, and these two types of worker are complementary to each other, in much of the industry prevailing on Tyneside. Thus a skilled welder or plater working in a shipyard is in Social class III, whilst his assistant - his "helper" - is in Social class V. This occupational situation can be repeated throughout all of the heavy industry of the valley. The proportion of men in social class V is further increased by the number of labourers engaged in the harbour and ware-housing industry of the docks and the river. [redacted] The proportion in social class IV, which is mostly composed of miners, is [redacted] hig compared with most other conurbations. Although there is little actual mining done today within the conurbation boundaries, there are numerous pit villages within the conurbation, whose inhabitants whilst continuing to live in their old homes, now work in pits just over the conurbation boundary.

Of all the country's conurbations, Tyneside is the most badly represented by men in social class II. Until recently there have been relatively few "black coated" jobs available. There has recently been an attempt made by the Government to improve this situation, by establishing in Newcastle the national headquarters of the Ministry of Pensions and National Insurance. This attempt to increase the proportion of the people in managerial and semi-professional work (Class II) has not been very successful. The work of this establishment has become highly mechanised, and the people, mostly women, employed in operating the machinery, fall into social class III, whilst the establishment's executive group of employees is comparatively small. 7

Finally social class I, the professional and managerial class, are under-represented as compared with the country as a whole. This situation, however, is probably more apparent than real, as the high proportion of people in this class in greater London, make the numbers in social class I of all the other conurbations seem proportionately small.

Within the conurbation, there are many interesting geographical variations of social class structure (Table 15). Some of these differences, of course, are explained by the grouping of the various social classes into certain residential areas. This analysis does not refer to the work-place of the various social classes, only to the place of residence. There is considerably more inter-mingling of the Social classes at work.

The bulk of social class I live in area IIA, particularly the wards of Jesmond and High Heaton in Newcastle, and in area IIIA which in this instance means, in effect, the residential towns of Gosforth and Whitley Bay. There is a lesser number in area IIIC which is the relatively new middle-class housing area on the outskirts of Gateshead. For social class II the geographical distribution follows a similar patter to class I, but with a considerable overspill into areas [redacted], IID, and IIIB. Area IIA, which contains many larger, older houses, is also favoured by Social class II. Areas IIIB and IIIC contain all of the very little inter-war speculative type of building which was erected on the south bank, mostly on the fringes of Gateshead, Felling, Hebburn and South Shields.

The distribution of social class III throughout the conurbation on the whole is fairly even; there does not appear to be any noteworthy concentration of this social class in any particular area. The geographical variations become more

Table 14 - Distribution per thousand occupied and retired males by Social Class. (3)

| Areas. | Social Class. | | | | |
|---|---|---|---|---|---|
| | I. | II. | III. | IV. | V. |
| England and Wales | 33 | 145. | 530. | 161. | 131. |
| Greater London. | 47 | 162. | 551. | 107. | 133. |
| South East Lancashire. | 28 | 136. | 547. | 136. | 153. |
| West Midlands. | 22 | 120. | 583. | 142. | 133. |
| West Yorkshire. | 23 | 138. | 557. | 163. | 119. |
| Merseyside. | 27 | 121. | 510. | 124. | 218. |
| Tyneside. | 26 | 111. | 552. | 145. | 166. |

Table No 15. Social Class Distribution of Occupied and Retired Males aged 15 and over. (3)

| Division or Sub-Division. | Total Males (Occupied and Retired). aged 15 and over. | Social Class. | | | | | Proportion per 1,000 total. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | I | II | III | IV | V. | I. | II. | III. | IV. | V. |
| TYNESIDE | 290,151 | 7,566 | 32,215. | 160,172. | 42,139. | 48,059. | 26. | 107. | 552. | 145. | 166. |
| I | 4,076 | 100 | 347. | 1,962. | 627. | 1,040. | 25. | 85. | 481. | 154. | 255. |
| II | 142,605 | 2,653 | 12,088. | 77,659. | 21,371. | 28,834. | 19. | 85. | 544. | 150. | 202. |
| IIA | 62,900 | 1,901 | 6,843. | 35,466. | 7,603. | 11,087. | 30. | 109. | 564. | 121. | 176. |
| IIB | 15,262. | 127. | 936. | 7,893 | 2,703 | 3,603 | 8. | 61. | 518. | 177. | 236. |
| IIC | 33,837. | 326. | 2,110. | 18,461. | 5,334. | 7,606. | 10. | 62. | 545. | 158. | 225. |
| IID | 30,606. | 299. | 2,199. | 15,839. | 5,731. | 6,538. | 10. | 72. | 517. | 187. | 214. |
| III | 143,470 | 4,813. | 19,780. | 80,551. | 20,141. | 18,185. | 34. | 138. | 561. | 140. | 127. |
| IIIA | 96,553. | 3,694. | 14,182. | 54,472 | 12,985. | 11,220. | 38. | 147. | 565. | 134. | 116. |
| IIIB | 4,330. | 91. | 399. | 2,356. | 951. | 533. | 21. | 92. | 544. | 220. | 123. |
| IIIC | 42,587. | 1,028. | 5,199. | 23,723. | 6,205. | 6,432. | 24. | 122. | 557. | 146. | 151. |

pronounced again for social classes IV and V. The relative concentrations of social class IV in areas IIB, IID, and IIIB, can probably be explained by the existence, within these three sub-divisions, of the few remaining coal mining villages. Social class V is proportionately concentrated in the older parts of areas I and II, although the effect of rehousing probably accounts for a high absolute number of this social class in area IIIc. This area contains much of the new housing of the local authorities.[redacted]. The Census Report of 1951 states that the concentration of social class V in sub-area I represents the place of residence of the "Dock Workers". The more likely explanation of this, is that these people are that section of the community who prefer to live in the delapidated property, in area I, because of its low rentals. The better, but more expensive council houses of the outer areas, do not attract them. Therefore the statement that the residents of area I are "dock workers" would appear to be too facile.

## References - Chapter 5.


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# Chapter 6.

## Living Conditions on Tyneside.

### A. Population Density on Tyneside. (1)

The wide variations of the density of population within the census sub-divisions, as opposed to the administrative sub-divisions, of the area are shown by table No. 16, and map No. 4. The over all density of 14.5 persons per acre is reasonably low for such a highly industrialised area as this. The breakdown within these areas is now discussed. (See also Appendix Table No.5.)

### Division I.

This is the administrative and commercial centre of Newcastle, and, whilst densely populated during working and shopping hours, its residential population is small, and thus the population density is relatively low. This area of 461 acres is small, and there is a marked prevalence of males in its population; presumably the result of the nature of activities of the division. There is probably a predominance of such people as caretakers, and residents of hotels, hostels, and boarding houses.

### Division II.

This is the older, pre-World War I part of the conurbation. In this division is concentrated much of local industry, it being particularly dense along the river side. Whilst the larger, and heavier industry, is concentrated in this narrow strip, it will be seen from map No. 4. that the areas of highest density of population are actually set back some way from the river, and spread from there well inland. This pattern results from the old Victorian and Edwardian methods of building. Rows of tightly packed terrace houses are situated as closely as possible to the place of work of their occupants, although not upon that valuable area close to the river needed for industry. The high density of 38 persons to the acre in sub-divisions IIA and parts of IID and IIB, reflect this pattern in the older industrialised parts of Newcastle, Gateshead and South Shields. The Newcastle wards of Elswick and Armstrong are particularly illustrative examples of this tradition. Almost all the housing in these wards was built in the late 19th Century by the Armstrong-Whitworth Company, and it lies on the hill immediately overlooking their great works on the riverside at Scotswood and Elswick. Gateshead, in area IIC, shows a somewhat different pattern, as the steeper river banks there did not allow the usual industrial development to take place along the river. Here the housing and factories are

**Table 6. - ACREAGE, POPULATION, PRIVATE HOUSEHOLDS and DWELLINGS** 1

TYNESIDE

No. 16

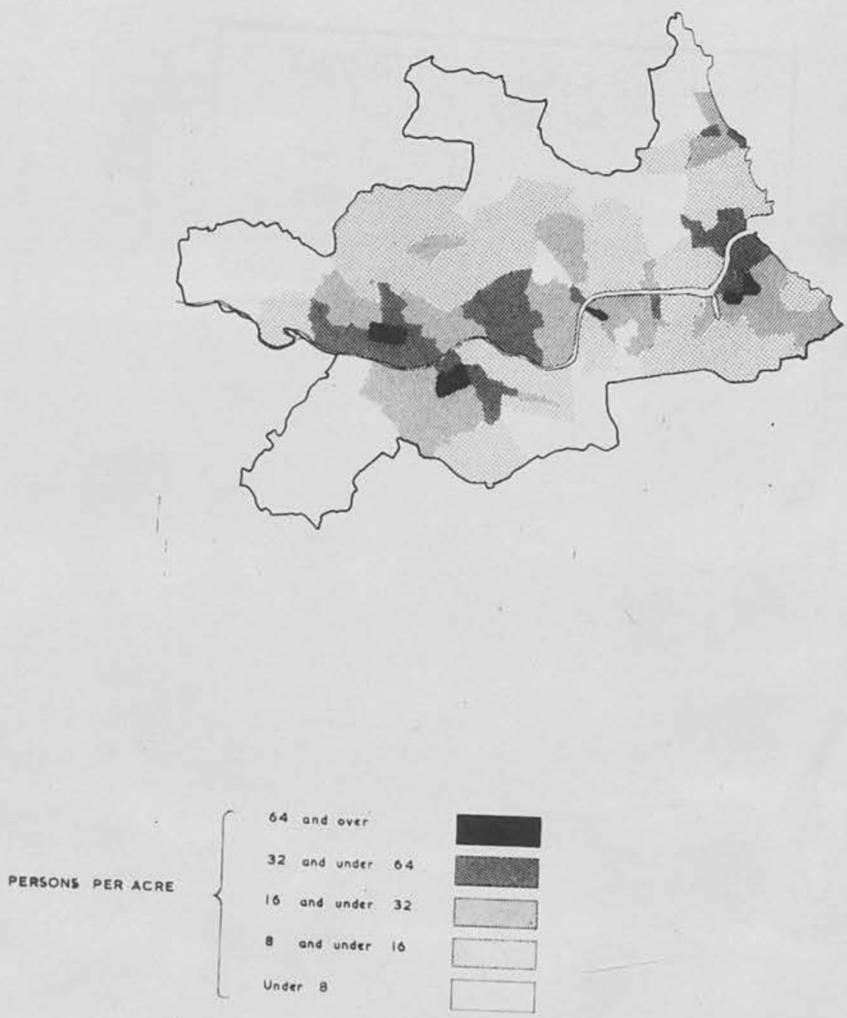
Notes:- ~~(1) For definitions of dwellings, households, rooms, etc., see pp. [illegible]~~
(2) Acreage figures have been supplied by the Ordnance Survey Department; ~~[illegible]~~
(3) All figures relate to the areas as constituted in 1951, with the exception of those areas marked ø where the 1931 figure given has not been adjusted for post-1941 boundary changes affecting local authority areas, and where 1931 figures are not available due to post-1941 ward boundary changes.

| Division or Sub-division | Acreage (Land and Inland water) | POPULATION | | | | | PRIVATE HOUSEHOLDS AND DWELLINGS, 1951 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 1931 | 1951 | | | | | | | | Density of Occupation | |
| | | Persons | Persons | Males | Females | Persons per Acre | Private Households | Population in Private Households | Structurally Separate Dwellings Occupied | Rooms Occupied | Persons per Room | Percentage of persons at more than 2 per Room |
| a | b | c | d | e | f | g | h | i | j | k | l | m |
| ø TYNESIDE | 57,688 | 827,091 | 835,533 | 400,084 | 435,449 | 14.5 | 249,221 | 817,175 | 237,968 | 929,732 | 0.88 | 6.2 |
| I | 461 | ø | 10,363 | 5,212 | 5,151 | 22.5 | 3,260 | 9,388 | 2,487 | 9,405 | 1.00 | 10.2 |
| II | 13,846 | ø | 407,001 | 195,688 | 211,313 | 29.4 | 123,944 | 395,645 | 116,174 | 424,872 | 0.93 | 8.7 |
| II A | 4,745 | ø | 180,412 | 85,509 | 94,903 | 38.0 | 55,768 | 174,378 | 50,758 | 197,789 | 0.88 | 8.4 |
| II B | 1,919 | 60,849 | 41,423 | 20,487 | 20,936 | 21.6 | 12,158 | 39,315 | 11,375 | 41,253 | 0.95 | 6.2 |
| II C | 3,894 | 113,624 | 97,527 | 47,414 | 50,113 | 25.0 | 28,160 | 96,515 | 26,977 | 95,306 | 1.01 | 10.1 |
| II D | 3,288 | ø | 87,639 | 42,278 | 45,361 | 26.7 | 27,858 | 85,437 | 27,064 | 90,525 | 0.94 | 9.0 |
| III | 43,381 | ø | 418,169 | 199,184 | 218,985 | 9.6 | 122,017 | 412,142 | 119,307 | 495,455 | 0.83 | 3.7 |
| III A | 28,545 | ø | 281,533 | 133,898 | 147,635 | 9.9 | 82,470 | 276,940 | 80,193 | 337,800 | 0.82 | 3.6 |
| III B | 5,459 | 11,438 | 11,497 | 5,749 | 5,748 | 2.1 | 3,259 | 11,156 | 3,219 | 12,548 | 0.89 | 4.6 |
| III C | 9,377 | ø | 125,139 | 59,537 | 65,602 | 13.3 | 36,288 | 124,046 | 35,895 | 145,107 | 0.85 | 3.7 |

Map No. 4.

# DENSITY 1951

## TYNESIDE CONURBATION (1)



chaotically intermixed.

The effects of depopulation in the 1930's, and of the post-war re-housing plans, are to be seen in the comparatively lower densities today existing in the shipyard towns of Jarrow and Hebburn (Division IID), and Wallsend (Division IIB), and to a lesser extent in Tynemouth (Division IIB).

Division III.

This is the area of inter-war and post-war building. Much of the property in IIIA is the inter-war speculative type of building, whilst that in IIIC is almost all local authority post-war housing schemes. These new residential areas all lie quite some distance from the main centres of employment, i.e. the riverside, and the centre of Newcastle.(2) The proportion of people who must now travel several miles from their home to their place of work is relatively large, and is increasing. Today almost half of the 400,000 males live in these new residential areas. This point is one that must be considered further when discussing who should be clinically responsible for the health of these people during their working hours. There is obviously little possibility of their being cared for, whilst at work, by their own family doctor, whose area of practice is upwards of 4 miles from their work place.

Whilst the trend of population movement to the residential areas of the conurbation continues, the pace of this is beginning to slow down. Local authorities, the county boroughs in particular, have begun to clear slum sites in their central areas, and these are being used to build multi-storey flats.(3) Most of the peripheral land available for housing has been taken up by the conventional type of dwelling, so that now the tendency is to build upwards rather than outwards. It can be expected that there will continue to be some further dispersal of population from the central areas, although the movement now seems to have passed its peak. This recent tendency has only become apparent since 1951, and is not reflected in the census figures.

The map of population density only gives a broad picture of the position. The divisions, electoral wards, used in compiling this map are somewhat coarse, and do not show the extremely small dense pockets of population within these sub-divisions. Some of the smaller, more crowded, river-side, parts of Newcastle do not show on this map, and are not revealed by the figures quoted in the text.

B. <u>Housing Conditions.</u> [1]

It can be argued that housing conditions have little bearing upon the planning of an Industrial Health Service. Nevertheless the local housing conditions are so poor, as compared with England and Wales as a whole, that they must influence to a considerable degree the health of the working population and this, of course, is the main concern of any Industrial Health Service. It would, therefore, be wrong to completely ignore such an important factor as this in any type of medico-social survey. For completeness sake, then, this situation will be briefly outlined.

Of the total number of separate dwellings, only 1% are in the central administrative area ([redacted]), and the rest are divided equally between areas II and III, i.e. 49% and 50% of the total respectively. In area II there are 118,655 houses, of which 40% (55,678) are in the older parts of Newcastle (Area IIA). Of the 121,552 houses in Area III (i.e. the area of more modern building) some 82,470, or over two-thirds, are on the north side of the Tyne.[1] This position illustrates further the neglect of the south bank communities during the bad, inter-war years. It will be seen from table No. 18 that Tyneside has a disproportionately large percentage (41.2%) of its 242,722 houses with 3 rooms or less. This compares most unfavourably with England and Wales, whose proportion of these smaller houses is only 16%. Tyneside's proportion of these houses is easily the highest of any of the conurbations in Great Britain.

On table No. 19. is shown the proportionate distribution of different sized dwellings within the three divisions of the conurbations. In areas I and II, 50.3% (1,280) and 51.0% (60,459) of houses have 3 rooms and under. In Area III the situation is somewhat better, as only 31.4% (38,231) of the houses have a similar size. This is probably accounted for by the fact that the majority of the houses in this area are under 30 years old. It would be expected from the above statements that the south bank, with little inter-war building, would also have a large proportion of its dwellings with 3 rooms and under, and this is so. Area IIC has over 50% of such dwellings, 14,666 out of 27,446, and IID an even larger proportion with 16,624, out of the total 27,796.[1]

Since the 1931 Census, the housing on Tyneside has improved somewhat. In table No. 19, column F, it will be seen that there has been a net increase of 59,028 in the total number of houses, in the last 20 years. These have been largely houses with 3 or more rooms. This type of housing is mostly located in Division III, and as already

Table 18 - Percentage Distributions of Dwellings by Size. (1)

England and Wales
Conurbation.

| Rooms in dwelling. | England and Wales. | Greater London. | South East Lancashire. | West Midlands. | West Yorkshire. | Merseyside. | Tyneside. |
|---|---|---|---|---|---|---|---|
| All sizes | 100.0 | 100.0 | 100.0. | 100.0 | 100.0 | 100.0. | 100.0. |
| 1. | 0.8 | 1.7 | 0.3 | 0.4 | 1.0 | 0.8 | 0.8 |
| 2. | 3.9 | 5.1 | 2.3 | 2.1 | 10.8 | 2.8 | 12.0 |
| 3. | 11.3 | 12.7 | 10.4 | 10.0 | 23.4 | 6.8 | 28.4 |
| 4. | 28.1 | 19.5 | 43.9 | 27.6 | 30.9 | 26.6 | 30.9 |
| 5. | 35.2 | 31.7 | 29.9 | 41.3 | 25.3 | 38.7 | 18.4 |
| 6.and over | 20.7 | 29.3 | 13.2 | 18.6 | 8.6 | 24.3 | 9.5. |

Table 19 - Structurally separate dwellings occupied by one or more private household(s) (1)

Tyneside

| Number of rooms | Structurally separate dwellings | | | | | Increase or decrease (-) in occupied structurally separate dwellings 1931-1951 | | | Percentage distribution of dwellings by size in each division | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1931 | | 1951 | | | | | | | | | |
| | Total | Occupied | Total | Occupied | Occupied by more than one household | All | Containing one household | Containing more than one household | Total | I | II | III |
| | a | b | c | d | e | f | g | h | j | k | l | m |
| All sizes | 181,939 | 178,940 | 242,722 | 237,968 | 8,022 | 59,028 | 66,578 | -7,550 | 100.0 | 100.0 | 100.0 | 100.0 |
| 1 | 3,615 | 3,545 | 1,913 | 1,812 | - | - 1,733 | - 1,733 | - | 0.8 | 3.9 | 1.2 | 0.3 |
| 2 | 33,220 | 32,859 | 29,031 | 28,095 | 141 | -4,764 | - 3,573 | -1,191 | 12.0 | 20.6 | 17.9 | 6.0 |
| 3 | 47,729 | 47,210 | 69,026 | 67,797 | 871 | 20,587 | 22,845 | -2,258 | 28.4 | 25.8 | 31.9 | 25.1 |
| 4 | 47,580 | 46,989 | 74,852 | 73,789 | 2,071 | 26,800 | 29,397 | -2,597 | 30.9 | 25.3 | 29.4 | 32.4 |
| 5 | 22,902 | 22,439 | 44,755 | 43,943 | 1,783 | 21,504 | 22,150 | - 646 | 18.4 | 11.4 | 10.4 | 26.4 |
| 6 and over | 26,893 | 25,898 | 23,145 | 22,532 | 3,156 | - 3,366 | - 2,608 | - 858 | 9.5 | 13.0 | 9.2 | 9.8 |

noted, two-thirds of houses in this division are on the north bank. Despite this new building, and in the light of what has been mentioned already, it is perhaps not surprising that even by 1951 Division III as a whole had only 36.9% of its houses with 5 rooms and over as compared with the national proportion for such houses of 55.9%

The south bank of the Tyne has, a disproportionately high number of old and small dwellings, and the more recent housing on the north bank has only altered this pattern slightly. Much of the new, i.e. post-World War I, building appears to have been of the 4 roomed type of dwelling, though [redacted] many are of the 3 room [redacted] type. Since 1931 the housing situation has improved in other respects. Table 20 shows an alteration in the pattern of shared dwellings. Column G of this table shows the extent to which the sharing of dwellings, in which one or two rooms were allowed to each household, has decreased. In the last 20 years some 20,000 households have stopped this practice of sharing dwellings [redacted]. As could be expected the largest proportion of the remaining shared dwellings are in areas I and II.

C. <u>Density of Occupation of Dwellings (i.e. Persons per room).</u> 1

There has been a considerable improvement in local living conditions in this respect. The position has, no doubt, been helped by the low birth rates of the 30's and the considerable emigration in this period. 4 The trend of the density of occupation of Tyneside housing during the last 30 years has been steadily downwards (table No. 21, columns A, B, and C). Within the conurbation, the pattern of density of occupation of dwellings is the familiar one. There are on the average more rooms to serve each household, no matter the number of persons in that household in area III than in areas I and II. The discrepancy between these areas is less marked when the larger households are considered.

Comparing the local pattern of occupancy with that of England and Wales (Table No. 22), it is seen that there is little difference when the smaller households are considered, but Tyneside fares increasingly badly as the size of the household increases. This difference is most marked for the larger families, and is presumably due to the relative absence of the larger sized dwellings on Tyneside. In provision of larger sized (Table 22A.) dwellings, Tyneside is still the worst served of all the conurbations. Comparing the sub-divisions of the conurbation with the national figures it will be seen that area III has a density of occupation of dwellings which is [redacted] close to the national average, whilst, as expected, areas I and II show substantially higher densities by comparison. The facts

Table 20. - Units of Occupation inhabited by Individual Households (1)

Tyneside

| Number of rooms | Households 1931 Total (a) | Households 1951 Total (b) | 1951 Occupying a whole dwelling (c) | 1951 In shared dwellings (d) | Increase or decrease (-) in households 1931-1951: All (e) | Occupying a whole dwelling* (f) | In shared dwellings* (g) | Percentage distribution of households by numbers of rooms occupied in divisions: Total (h) | I (j) | II (k) | III (l) | Percentage of households in shared dwellings in divisions: Total (m) | I (n) | II (o) | III (p) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ll sizes | 201,721 | 249,221 | 229,631 | 19,590 | 47,500 | 66,578 | -19,078 | 100.0 | 100.0 | 100.0 | 100.0 | 7.9 | 36.0 | 10.7 | 4.3 |
| 1 | 19,055 | 7,680 | 1,812 | 5,868 | -11,375 | - 1,733 | - 9,642 | 3.1 | 14.9 | 4.5 | 1.3 | 76.4 | 80.7 | 76.2 | 75.9 |
| 2 | 47,986 | 35,694 | 27,946 | 7,748 | -12,292 | - 3,573 | - 8,719 | 14.3 | 29.9 | 20.7 | 7.4 | 21.7 | 48.2 | 20.4 | 22.4 |
| 3 | 48,458 | 70,569 | 66,888 | 3,681 | 22,111 | 22,845 | - 734 | 28.3 | 26.3 | 31.3 | 25.4 | 5.2 | 27.5 | 5.9 | 3.8 |
| 4 | 43,554 | 72,909 | 71,627 | 1,282 | 29,355 | 29,397 | - 42 | 29.2 | 18.7 | 27.2 | 31.6 | 1.8 | 7.9 | 2.4 | 1.1 |
| 5 | 20,443 | 42,653 | 42,068 | 585 | 22,210 | 22,150 | 60 | 17.1 | 5.8 | 9.3 | 25.4 | 1.4 | 11.1 | 3.0 | 0.7 |
| and over | 22,225 | 19,716 | 19,290 | 426 | - 2,509 | - 2,508 | - 1 | 8.0 | 4.4 | 7.0 | 8.9 | 2.2 | 4.8 | 3.0 | 1.5 |

figures in these columns give only an approximate comparison with columns (c) and (d), since in 1931 the tabulations did not distinguish sharing and non-sharing useholds. The figures for occupations of six and over rooms are particularly unreliable.

Table 21 - Persons per room, by size of household. (1)

Tyneside.

| Persons in Household. | Conurbation. 1921. (a). | Conurbation. 1931. (b). | Conurbation. 1951. All Households. (c). | Conurbation. 1951. Sharing Households. (d) | Divisions. 1951. I. (e) | Divisions. 1951. II. (f) | Divisions. 1951. III. (g) |
|---|---|---|---|---|---|---|---|
| All sizes - crude ratio | 1.33. | 1.14. | 0.88. | 1.16. | 1.00. | 0.93. | 0.83. |
| standardised ratio* | 1.03. | 0.98. | 0.88. | ~~0.57.~~ | 1.07. | 0.95. | 0.81. |
| 1. | 0.42. | 0.43. | 0.34. | 0.57. | 0.51. | 0.37. | 0.29. |
| 2. | 0.66. | 0.62. | 0.55. | 0.91. | 0.71. | 0.60. | 0.51. |
| 3. | 0.92. | 0.87. | 0.80. | 1.32. | 1.02. | 0.87. | 0.74. |
| 4. | 1.16. | 1.11. | 1.03. | 1.60. | 1.22. | 1.13. | 0.96. |
| 5. | 1.42. | 1.36. | 1.24. | 1.73. | 1.40. | 1.33. | 1.17. |
| 6 and over. | 2.05. | 1.91. | 1.60. | 2.07. | 1.62. | 1.69. | 1.52. |

* standardised ratios obtained by weighting rooms per person ratios for each size of household by the corresponding proportion of the population of the conurbation as a whole in households of that size in 1951.

England and Wales
Conurbations.

Table 22 - Persons per room by size of household. 1

| Persons in Household. | England and Wales. | Greater London. | South East Lancashire. | West Midlands. | West Yorkshire. | Merseyside. | Tyneside. |
|---|---|---|---|---|---|---|---|
| All sizes | | | | | | | |
| Crude Ratio | 0.74 | 0.77 | 0.72 | 0.77 | 0.77 | 0.78 | 0.88 |
| Standardised ratio | 0.74 | 0.80 | 0.74 | 0.73 | 0.81 | 0.73 | 0.86. |
| 1. | 0.30 | 0.40 | 0.28 | 0.28 | 0.32 | 0.30 | 0.34. |
| 2. | 0.49 | 0.55 | 0.48 | 0.48 | 0.54 | 0.47 | 0.55 |
| 3. | 0.69 | 0.74 | 0.69 | 0.68 | 0.75 | 0.67 | 0.80 |
| 4. | 0.87 | 0.91 | 0.88 | 0.87 | 0.95 | 0.86 | 1.03 |
| 5. | 1.03 | 1.06 | 1.07 | 1.06 | 1.13 | 1.05 | 1.24 |
| 6 and over. | 1.33 | 1.32 | 1.37 | 1.42 | 1.44 | 1.42 | 1.60 |

England and Wales
Conurbation.

Table 23 - Percentage Distributions of Households by Size. 1

| Persons in Household. | England and Wales. | Greater London. | South East Lancashire. | West Midlands. | West Yorkshire. | Merseyside. | Tyneside. |
|---|---|---|---|---|---|---|---|
| All Sizes | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| 1. | 10.7 | 13.6 | 11.4 | 8.0 | 12.9 | 9.9 | 10.8 |
| 2. | 27.7 | 28.5 | 28.7 | 25.4 | 30.4 | 23.4 | 25.0 |
| 3. | 25.3 | 25.0 | 25.9 | 25.9 | 25.3 | 23.4 | 25.5 |
| 4. | 19.0 | 18.3 | 18.6 | 20.5 | 17.4 | 19.7 | 19.7 |
| 5. | 9.6 | 8.5 | 8.9 | 10.7 | 8.0 | 11.5 | 10.1 |
| 6 and over. | 7.7 | 6.1 | 6.5 | 9.5 | 6.0 | 12.1 | 8. 9 |

England and Wales
Conurbations.

Table [illegible] - Percentage Distributions of Household Occupations by Size. 1

22A

| Rooms Occupied by Household. | England and Wales. | Greater London. | South East Lancashire. | West Midlands. | West Yorkshire. | Merseyside. | Tyneside. |
|---|---|---|---|---|---|---|---|
| All sizes | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0. |
| 1. | 2.7 | 5.8 | 2.0 | 2.2 | 2.3 | 3.6 | 3.1 |
| 2. | 8.1 | 12.6 | 4.7 | 7.3 | 11.6 | 9.0 | 14.3 |
| 3. | 14.9 | 23.4 | 11.1 | 12.2 | 23.4 | 10.1 | 28.3 |
| 4. | 27.3 | 20.5 | 42.3 | 26.0 | 30.3 | 25.1 | 29.2 |
| 5. | 31.6 | 24.9 | 28.3 | 37.0 | 24.6 | 33.6 | 17.1 |
| 6 and over. | 15.4 | 12.8 | 11.6 | 15.3 | 7.8 | 18.6 | 8.0. |

shown on table No. 23 should be constantly borne in mind when considering Tyneside housing conditions.

The high density of occupation of housing on Tyneside is not so much due to the larger size of families locally, as to the extremely low proportion of larger sized dwellings available for occupancy by such families.

D. Household Arrangements. 1

When the domestic facilities available to households on Tyneside are considered the discrepancy between the depressed south bank and the more fortunate north bank is very evident. The domestic facilities of the whole conurbation are about equal to those of England and Wales, (Table 24). Table 25, however, shows wide variations in this respect within the conurbation itself. As probably expected area III with its high proportion of new building, is much the better served. On the other hand Division I is badly served, particularly in its absence of fixed baths. It is the range of differences in Division II that is most striking. Despite its many old and crowded houses Newcastle (IIA) is, as a whole, served, in its domestic arrangements, as well as England and Wales. Area IID, Hebburn, Jarrow, and South Shields, contains the local black spots in this respect, whilst IIB and IIC, Tynemouth and Gateshead follow it closely behind. All these areas are well below the national average in their absence of piped water, and the associated lack of kitchen sinks and baths.

## References - Chapter 6.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2. Chapter 8. Pages 60-81.

3. News Item (1956) Newcastle Journal June 20th.

4. Registrar General (1930-36) Statistical Reviews For England & Wales. Tables Part I. Medical.

Table 24 - Percentage of Households in Undivided Dwellings with specified availability of Household Arrangements. (1)

England and Wales Conurbations.

| Area. | Percentage of Households in undivided dwellings. | | | | | | |
|---|---|---|---|---|---|---|---|
| | Without exclusive use of | | | | | With all five arrangements E. | With Bath S or N, other four arrangments E. |
| | Piped Water. | Cooking Stove. | Kitchen Sink. | Water closet. | Fixed Bath. | | |
| England and Wales | 12 | 3 | 7 | 14 | 38 | 59 | 21 |
| Greater London. | 9 | 2 | 3 | 6 | 25 | 73 | 16 |
| South East Lancashire. | 4 | 3 | 1 | 6 | 40 | 58 | 31 |
| West Midlands. | 10 | 3 | 5 | 11 | 37 | 61 | 22 |
| West Yorkshire. | 5 | 2 | 1 | 25 | 41 | 55 | 16 |
| Merseyside. | 7 | 4 | 3 | 3 | 31 | 66 | 24 |
| Tyneside. | 12 | 1 | 8 | 10 | 38 | 60 | 22 |

Table 25 - Percentage of Households in Undivided Dwellings with specified availability of Household arrangements. (1)

Tyneside.

| Area. | Percentage of Households in undivided dwellings. | | | | | | |
|---|---|---|---|---|---|---|---|
| | Without Exclusive Use of | | | | | With all five arrangements E. | With Bath S or N, other four arrangents E. |
| | Piped Water. | Cooking Stove. | Kitchen sink. | Water-Closet. | Fixed Bath. | | |
| Tyneside. | 12. | 1. | 8. | 10. | 38. | 60. | 22. |
| I. | 28. | 2. | 19. | 19. | 61. | 36. | 29. |
| II. | 19. | 2. | 12. | 17. | 58. | 40. | 32. |
| III. | 6. | 1. | 3. | 4. | 19. | 79. | 13. |
| II A | 12. | 1. | 6. | 9. | 44. | 54. | 29. |
| B | 21. | 2. | 15. | 15. | 59. | 39. | 34. |
| C | 17. | 1. | 8. | 9. | 60. | 39. | 40. |
| D | 31. | 5. | 25. | 38. | 80. | 19. | 30. |
| III A | 6. | 1. | 3. | 3. | 17. | 81. | 11. |
| B | 6. | 1. | 3. | 6. | 30. | 68. | 21. |
| C | 6. | 1. | 3. | 4. | 24. | 74. | 17. |

# Chapter 7.

## The Industry of Tyneside.

### A. Census of Industry.

a) Introduction. Before any detailed Survey work could be started it was necessary to carry out a census of local industry. It was obvious, on a purely empirical basis, at the beginning of the survey that the whole of the commercial and industrial establishments, in an area such as this, could not be covered adequately with the resources available to the investigation. It was decided, therefore, at the outset that the scope of the investigation should only extend to those firms engaged in the actual manufacture of goods of all types (as opposed to those engaged in their distribution, transport, finance, commerce, etc). The building and construction industry was excluded because the transitory nature of its activity, in any one locality, would add considerably to the difficulty of the investigation and involve an amount of work out of proportion to its relative local importance. For similar reasons agriculture, forestry, and fishing were excluded, and furthermore, they form a very minor part of the industrial activity of the conurbation. Only a relatively small amount of mining, and no quarrying, is carried on within the survey boundaries; for this reason, and because the few mines there are in the area are covered adequately by the comprehensive Industrial Medical Service of the National Coal Board,(1) these too were excluded.

In summary then, the type of industry being investigated within the Survey Area was that included in Orders III and VI (Code numbers 044/669) inclusive of the Registrar General's Classification of Industries as used for the Census in 1951.(2) This classification is identical to the Minimal List Headings - Numbers 20 to 119 inclusive of the Standard Industrial Classification of the Central Statistical Office 1948.(3) These industries are known henceforth as the "Survey Industries".

After discussion, with governmental, academic, and private organisations, it became obvious that there were no sources of information, which could provide the data that was needed, in the form that was needed. The investigation was thus faced with the initial task of assembling this considerable amount of material and analysing it.

For the purposes of the survey it was considered desirable to obtain the following facts about the Survey Industries.

1. The registered name of each industrial company.

2. The geographic location of each separate establishment of each company.

3. The classification according to the above classification; of the predominant activity of each establishment.

4. The number of employees engaged by each establishment, preferably by age and sex.

5. If possible, the financial linkages between concerns, to estimate where the controlling power of each establishment lay.

The whole of this assessment of the survey was considerably hampered by the reluctance of nearly all the industrial establishments approached to divulge information about points 3. and 4. As a result such information as was available from other sources has been pieced together to form as comprehensive a picture as possible.

b). Sources of Information. Initially all industrial establishments in the area had to be identified by name. There proved to be no comprehensive list of local manufacturing establishments already in existence. The numerous trade associations were identified, who were, to a greater or lesser degree, willing to divulge the name of their members. Even so, some sectors of local industrial activity prove to have a large proportion of non-members of such associations. It would appear that many Tyneside business men are unwilling to subscribe to their representative bodies. Numerous trade directories are, however, available, but these cover the whole of the British Isles. To extract, from scores of these directories, the names of those firms who operate on Tyneside, even if they provided adequate information, was a task beyond the capacity of the survey. Most of the firms named in these books are arranged in alphabetical and not geographical order. Local trade directories, which at first sight would appear to provide the solution present two difficulties. Firstly, such directories are arranged by counties or towns and include many firms not actually in the locality of the Tyneside survey area, tedious separation again being necessary. Secondly, these directories include in their trade classification many firms whose local activity is purely commercial or distributive, and whose actual manufacturing plant is elsewhere. It proved impossible to separate, in the light of knowledge available at that time, those firms genuinely engaged in the manufacturing industry on Tyneside from the amorphous mass of the other concerns listed in these directories.

The Board of Trade were approached for help and were able to supply a limited amount of information. Under the terms of the Board of Trade Act 1947, this Department is empowered to collect, monthly, a standard return about certain activities, from each industrial and commercial establishment in the country, which employs over 10 people. This information includes the total number of persons employed by these establishments, and certain details about their primary industrial activity. This return is known colloquially as the "L" return. Under the terms of the above Act the Board's officials, who obtain possession of the information given on this return, are liable to a penalty should they disclose any of it to an unauthorized person. Because of this restriction the amount of information available from the Regional Office of the Board of Trade proved to be limited. It was possible for the Board to supply the title and address of all the industrial establishments within the survey boundary without infringing the terms of the Act. They were not able to give the classification, in terms of industrial activity, of each establishment, because of these restrictions. It was discovered that the presentation of the listed establishments was in a sequence which corresponded to the classifcation of industry compiled by the Central Statistical Office. This classification uses the same Order Groups as the Census Classification of Industries, but these are arranged in a different consecutive manner. Thus it was possible to name and locate geographically all the industrial establishments of the Survey Industries which employed over 10 people, and having discovered their mode of classification, these establishments were re-classified and coded by the more practical Census Classification. The fact that the industrial activity of each firm had already been coded by the Board of Trade solved for the survey a considerable problem. This allocation of each establishment to a definite industrial category had been done by the Board's experts who were in full possession of the essential facts relating to that firm's activities. This categorisation is thus much more accurate than any similar classification could have been, if attempted by the limited resources of this survey. It should also be noted that this categorisation provided information about separate industrial establishments and not merely about industrial companies; the broadest picture of the manufacturing activity of the valley was thus obtained.

It will be appreciated that whilst the classification, by location and activity, had been obtained it was impossible to obtain from the Board of Trade any information about the number of people each establishment employed (other than the fact that they each employed over 10 people).

This latter piece of information is essential to any census of industry, and to obtain it the local offices of the Factory Inspectorate were approached. The co-operation of the Chief Inspector of Factories had previously been sought and he had given, on general grounds, every encouragement to his local inspectors to co-operate with the work of the survey. The information about factory populations now needed, was made available by the local Factory Inspectors. This was obtained by searching the local Factory Registers, compiled and maintained by the Inspectorate, against the list of establishments supplied by the Board of Trade. Thus it was possible to arrive at an estimate of the population of each of the various establishments. There are, however, several inaccuracies involved in the combining of the information from these two sources.

1. The boundaries of the Factory Inspectorate districts do not coincide with the boundaries of the survey. Although no known inaccuracies arose from this per sé, it meant that the Survey Industries had to be abstracted from amongst a larger group.

2. The figures, for each factory population recorded in the registers, appear to relate only to that number of employees of the establishment that are covered by the provisions of the Factory Act, and by the regulations made under them. Thus those employees working in offices, or on a process not coming under the supervision of the Inspectorate, do not seem to be included in the totals given in the register.

3. The figures for this population of each factory seem to have been approximated to the nearest double figure, although reassurance was given by the District Inspectors that care had been taken with the accuracy of these totals. Furthermore, totals only were given, and there was no breakdown of the population of these establishments by age and sex.

4. Some factories, particularly those with fewer employees and less hazardous processes, were only inspected every three years. Larger establishments, and those with more hazardous processes were inspected more frequently. No establishment was inspected more frequently than once a year. Thus the estimated population for many of the factories was up to 3 years old, and with the smaller concerns, particularly those subject to fluctuating activity (e.g. fish preserving, mineral water manufacture), the figures recorded

in the register could well be highly inaccurate as a result of this practice.

5. The cycle of the Factory Inspectorate is a continuous one, and the figures for the population of different establishments thus represent the situations existing at different points in time.

6. The description of the main activity of each establishment given in the register was often vague, and did not always coincide with that given by the Board of Trade. The descriptions in the register tended to be more general and diffuse than the precise categorisation given by the Board. As the titles and address of the establishments of the register always coincided with those given by the Board's list, these inaccuracies did not affect the accuracy of this type of information.

c). Treatment of Information. It will be seen that in the statistical description of the Survey Industrial establishments (Table 27-38 and Appendix Table 7), some grouping together of various types of industrial activity has been undertaken for convenience sake. To have categorized industry under each of the separate code number headings, would have complicated, unnecssarily, an already sufficiently complex industrial pattern. In the larger industrial groups such as Order VI, engineering and shipbuilding, the minimum amount of grouping has been attempted, whilst in the numerous smaller groups there has been considerably more condensation. Two principles were roughly followed in this grouping of the code numbers. Firstly manufacturing activities of similar type were grouped together where this seemed apt. Thus in Order XII the two main types of clothing manufacture, tailoring and dressmaking, are listed separately under code numbers 410+421; following these are grouped together code numbers 439 to 459 (small wear manufacture) covering the manufacture of shirts, underwear, hats, handkerchiefs, etc. The remaining two groups in this order, namely manufacturing and repairing of boots and shoes, are both grouped as 460-461. In some orders, however, a slightly different principle was followed, because of the absence on Tyneside of any of the representatives of that particular type of activity: thus in order VII the manufacturing and assembling of vehicles (204) has been included with the code number covering motor repairing and garages (217) there being no representative on Tyneside of code 204, and the majority of establishments classed in this order fall under code 217. The remainder of the code numbers in this order are functionally separate from the motor vehicles industry, and are included in the grouping 231-241. This covers such types of vehicles as locomotives which are made on Tyneside, and perambulators which are not.

It had been hoped to compile a Census of ALL manufacturing establishments on Tyneside, giving the number of persons that were employed, and the manufacturing activity of each of them. As has already been noted, the basic list of establishments obtained from the Board of Trade only covered those places employing over 10 persons. It would have been possible to compile a census list of all remaining factories, i.e. those employing 10 people and under, from the information available from the Factory Registers. There are, however, several drawbacks to undertaking such an extensive census on the basis of the information available from these Factory Registers.

a) Classification into types of industry of the small establishments would have to be attempted on the basis of the much vaguer descriptions available from the Registers, rather than upon that provided by the Board of Trade. In effect, two different bases of classification would probably have resulted.

b) The infrequency of inspection referred to above applies particularly to these smaller factories. The accuracy of the estimates of their work-forces was much more suspect for the smaller size group, than for the larger establishments.

c) The "rounding off" of the figures for the factory populations already referred to would cause a relatively larger inaccuracy in this smallest size group of factories, than in the larger size-groupings.

It will be seen in Chapter 10 that an estimate of the total number of industrial establishments employing over 10 people or less has been made from other data supplied by the Factory Inspectorate. It will also be seen that whilst this size-group is so numerically large, the total work force it employs is relatively small (5% of the total work-force of the Region). Any more accurate and detailed census of it was considered to be beyond the capabilities and the purpose of this investigation. One aim of the Survey was to describe the Industrial Health facilitiies existing in local industry. It was considered that as the small sized factory would almost certainly have not more than the most rudimentary of such facilities, nothing vital would be lost by ignoring them for this immediate purpose. Furthermore the inclusion of this group of establishments within a comprehensive Regional Industrial Health Service presents peculiar difficulties. These are considered further in Chapter 20 .

Thus the group of industrial establishments under investigation and known henceforth as the "Survey Factories" is: those factories within the Survey Area, employing over 10 people and classified within Orders III to XVI inclusive of the Census Classification of Industry 1951.

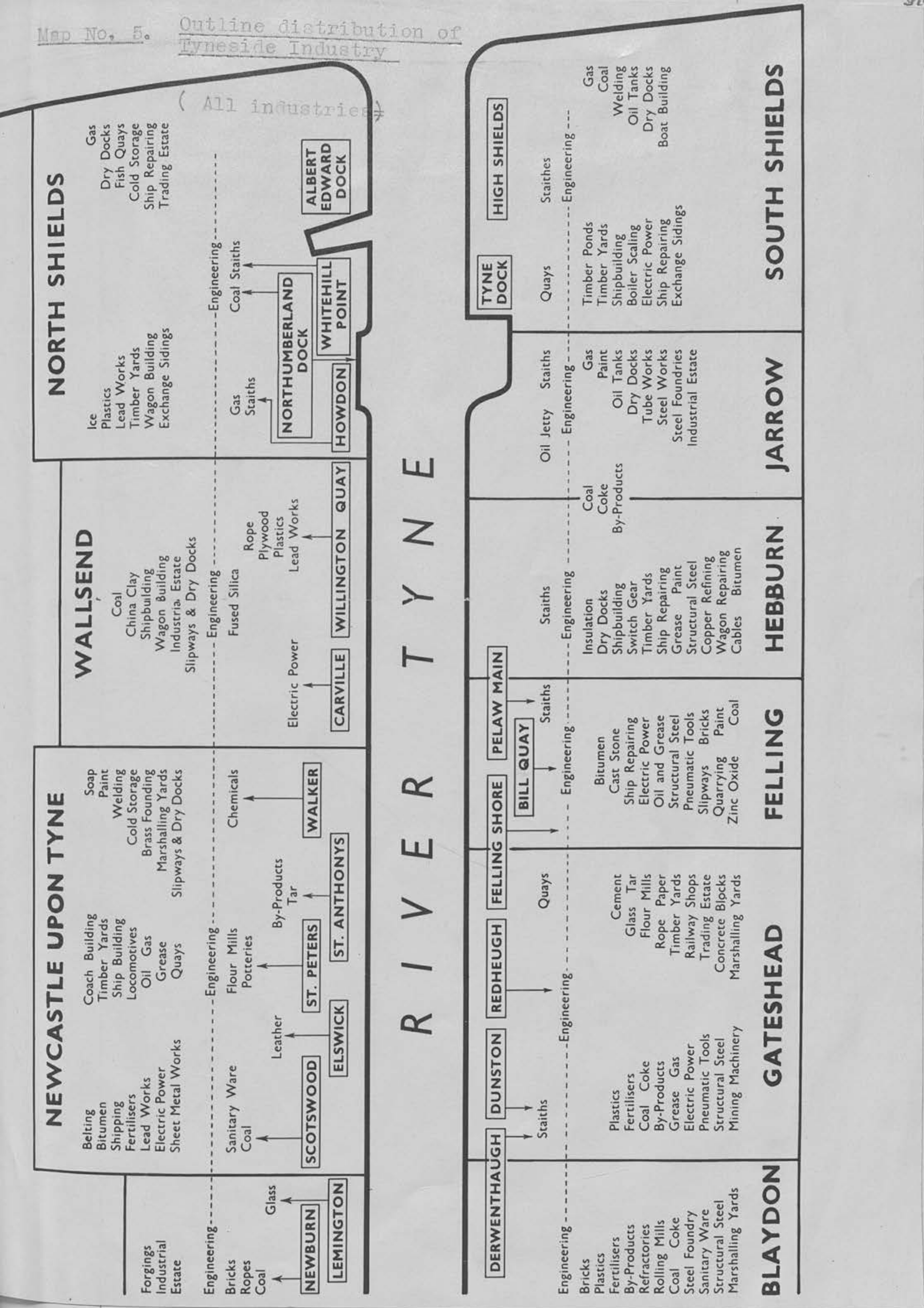
d). Validity of Census. Of all the inaccuracies in the information about the Survey Factories, that stated in Note 2. above is the most serious. There is no method of accurately assessing what proportion of the total workers employed, in any one establishment, is represented by the figure given on the Factory Register. Thus the number of non-production staff, or workers not exposed to statutory hazards must vary as a result of a large number of influences. These range from the type of product being manufactured to the modernity of the plant being used. Nevertheless, these were the only figures that could be obtained for the population of each factory. Attempts to improve upon the accuracy of this information by personally contacting firms by letter, telephone, and through the trade associations, were, for the most part, abortive. Industry is loth to communicate information about the strength of its work-force to anyone not obviously connected with that particular concern. This reticence is quite understandable. Short of a personal visit, therefore, to all these establishments, to establish the bona fides of the Survey, and so possibly get this information, it is doubtful if any more accurate estimate of each factory population could be obtained. Personal visits also might have aroused some antagonism to the whole investigation, so that later attempts to get the co-operation of that concern, on other matters, may have been vitiated.

All the information obtained about each establishment was transferred to individual record cards, and the geographic location and the type and size of each factory was plotted on a large scale (6 inches to the mile) wall map. From this master map the distribution, within the various Orders of Industry, throughout the Tyne Valley was analysed and is shown on map No. 5. ~~and map No. in the Appendix~~.

When the following data is considered it must be remembered that only those establishments engaged in manufacturing industry, as previously defined, and ~~in~~ employing over 10 people, are included. There are 856 such Survey Factories on Tyneside and a description of them by Industrial Orders follows.

Map No. 5. Outline distribution of Tyneside Industry

( All industries)



## References - Chapter 7.


1. Capel, E.H. (1948). J.Roy.San.Inst. 68,525.

2. Census 1951, England & Wales. Classification of Industries. H.M.S.O. London.

3. Central Statistical Office (1948). Standard Industrial Classification. H.M.S.O. London.

## Chapter 8.

## The Survey Industries of Tyneside by Type and Size of Work-Force.

A summary of the classified Orders of Industries (1) is given in Table 26, the main sub-divisions within these orders are given in appendix Table No. 8.

### Order VI.

### Engineering, Shipbuilding, and Electrical Goods, (Code Nos. 120-199)

The numerically largest Order of industrial establishments is Order VI (Table No.27). There are 166 factories within it, and the range of products they make is widely varied, as will be seen from appendix Table No. 8. Under these circumstances it is better to consider separately the main groupings.

### Shipbuilding (Code No. 120).

There are 30 separate establishments included under this Code Number on Tyneside, and 8 of these employ over 1,000 people. The largest single concern employs some 12,000 people but these are engaged in 3 separate establishments, one of which is partially marine engineering works. Some of the other establishments under this code number also have small marine engineering departments within them, but, by and large, the local pattern of having a separate marine engineering establishment outside the main shipyard is followed. Most of these latter marine engineering departments appear under code number 121, as they are geographically separate from the shipyards. Included also in the present category of industry is ship-repairing. These concerns employ, individually, fewer work people than the average shipbuilding concern. The largest single establishment engaged in repairing employs just over 1,000 men. This type of activity accounts for all the 8 establishments in the size-group employing between 250-500 people. In that group of smaller establishments, with under 250 employees, are located the smaller shipbuilding and shiprepairing yards. These smaller establishments deal with smaller craft such as tugs, coastal traders, lighters and barges. In the smallest group, i.e. those employing under 50 people, are included the shipbreaking establishments, of which there are only 3, and the smaller building yards, which produce such smaller craft, as life-boats, and patrol craft. It must be noted here that, according to the Industrial Classification 1951, ship-breaking is included under code number 289. However, for the purposes of the survey this has been included in code number 120. It is suggested that it is more logically placed within this group for present purposes.

(1)

Table No. 26. Summary of Industrial Orders
(Survey Industries only)

| Order | Industry |
|---|---|
| III | Treatment of Non-Metalliferous Mining products, other than Coal. |
| IV | Chemicals and Allied Trades. |
| V | Metal Manufacture |
| VI | Engineering, Shipbuilding and Electrical Goods. |
| VII | Vehicles |
| VIII | Metal Goods (not elsewhere specified) |
| IX | Precision Instruments, Jewellery, etc. |
| X | Textiles |
| XI | Leather, Leather Goods and Fur. |
| XII | Clothing |
| XIII | Food, Drink and Tobacco. |
| XIV | Manufactures of Wood and Cork. |
| XV | Paper and Printing |
| XVI | Other Manufacturing Industries. |

Type of Industry    Table 27. Order V1    Factory Size Groupings by Area & Total

| CODE | 11-50 | | | | | 51-100 | | | | | 101-250 | | | | | 251-500 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. |
| 120 | 3 | 1 | 3 | 1 | 8. | | | | 2. | 2. | 2 | | 2 | | 4. | 2. | 1 | 5 | | 8. |
| 121 | | 1 | 2 | 1 | 4. | | | | | | | | 1 | 1 | 2. | | 1 | | 1 | 2. |
| 122-140 | 1 | 1 | | 2 | 4. | | 2 | | | 2. | | | | 2 | 2. | | 2 | 1 | 1 | 4. |
| 141-142 | | 1 | | 2 | 3. | | | 2 | | 2. | | 2 | | | 2. | | 1 | | 1 | 2. |
| 154-168 | 2 | 6 | 3 | 5 | 16. | | | | | | 1 | | 1 | 4 | 6. | 1 | | 1 | 1 | 3. |
| 169 | 3 | 9 | 3 | 10 | 25. | | 2 | 1 | | 3. | 1 | 1 | 1 | | 3. | 2 | 1 | 1 | 1 | 5. |
| 170-172 | 1 | 4 | 1 | 1 | 7. | | | | 1 | 1. | | 1 | | 1 | 2. | | | | 1 | 1. |
| 180-199 | 2 | 5 | 2 | 2 | 11. | | 1 | | | 1. | | | | 3 | 3. | 1 | | 2 | 1 | 4. |
| Total | 12 | 28 | 14 | 24 | (78) | | 5 | 3 | 3 | (11) | 4 | 4 | 5 | 11 | (24) | 6 | 6 | 10 | 7 | (29) |

| CODE | 501-1000 | | | | | 1001-2000 | | | | | 2001-5000 | | | | | 5000+ | | | | | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 120 | | | | | | 1 | | | 3 | 4. | 3 | 1 | | | 4. | | | | | | |
| 121 | 1 | 1 | | | 2. | 1 | | | | 1. | 1 | | | 1 | 2. | | | | | | |
| 122-140 | | | | | | | | | | | | 1 | | | 1. | | 1 | | | 1. | |
| 141-142 | | | | 1 | 1. | | | | | | | | | | | | | | | | |
| 154-168 | | | | 2 | 2. | | | | | | | | | | | | | | | | |
| 169 | | | | 1 | 1. | | | | | | | | | | | | | | | | (166) |
| 170-172 | | | | | | | | | | | | 1 | | | 1. | | | 1 | | 1. | |
| 180-199 | | | 2 | 1 | 3. | | | | | | | | | | | | | | | | |
| Total | 1 | 1 | 2 | 5 | (9) | 2 | | | 3 | (5) | 4 | 3 | | 1 | (8) | | 1 | 1 | | (2) | |

When interpreting these figures a peculiarity about the shipbuilding industry must be remembered. (2) It employs a large number of different types of craftsmen, the more specialised of which, e.g. carpenters and upholsterers, can only be employed by any one firm when a certain type of vessel, e.g. a passenger liner, is being constructed by that firm. Work for each of the crafts in any one yard is also dependent upon the stage of construction reached by a certain vessel at a particular time, as well as upon the specific type of that vessel. Only the largest yards, therefore, have a sufficently wide range and number of vessels building, and at different stages of construction, at one time, to provide constant work for the range of craft skills used in this industry. In fact on Tyneside no yard could claim to be so comprehensive in its activity. Thus the labour force is a peculiarly mobile one in shipbuilding. The carpenter, fining that work is completed on a new passenger liner at one end of the Tyne, may only find suitable work, immediately available, at a ship-repairing yard at the far end of the river. If there is no demand for his skill at the precise moment his present job is completed, then he remains unemployed until another ship reaches the appropriate stage of construction when his craft is needed. For this reason skilled workmen in this industry are on a contract of service of two hours notice. Today, of course, with order books for new ships full, and a large tanker tonnage requiring continuous repairing, it is not often that even the most specialised of craftsmen cannot find employment, over-night, somewhere along the river.

When the qualifications already mentioned, about the accuracy of the factory population data, are combined with this peculiar mobility of the population of the shipbuilding industry, it would seem, that some of the figures provided, from the factory register, could be wildly astray. In actual fact with this industry booming at present, the composition, in terms of the occupations of the work-force, may vary, considerably from yard to yard, from day to day, but the total numbers employed in each establishment remains fairly constant. (3)

One section, in this group of industry, which is only intermittently active is shipbreaking. (3) The establishments are few in number and employ relatively few work-people. Unless a shipbreaker can accumulate sufficient reserves of old ships, in his yard, to provide continuity of work for his employees, there are bound to be long periods of inactivity. Tyneside shipbreaking yards are situated well-upstream, and can only take small vessels, which are quickly disposed of. Furthermore, they do not have sufficient space, in this area, to accumulate reserves of work, and therefore shipbreaking on the Tyne, is a very sporadic industry.

The mobility of the shipyard labour force presents some peculiar difficulties, in planning an Industrial Health Service for the area, when it is considered that some 75,000 people are employed in this industry. Further consideration is given to this in chapter 21 .

Marine Engineering (Code No. 121).

There are 13 firms of this group, 3 of them employing over 1,000 workers, and 4 are medium sized establishments employing between 250 and 1,000. Some of them, as already noted, are owned by shipbuilding firms, and almost all of their product is supplied to the parent building yards. All the 6 smaller firms, employing under 250 people, are independent. The larger establishments, as well as supplying the parent firm with machinery do, occasionally, take in contracts for marine engineering work from other yards on Tyneside and elsewhere.[4] Such yards do not own their own engineering shops. One of the large independent makers of propulsion machinery has recently developed an interest in nuclear power plants for marine use. This establishment is quite separate from the local electricity generating industry, which is engaged on producing nuclear power plant for the electricity supply industry.

Some of the firms also build combustion equipment, such as high pressure boilers for their marine propulsion units. This latter activity should, logically, be included under code number 123, but, where it is an integral part of a marine engineering establishment, it is included under code number 121.

The work pattern in marine engineering is less intermittent than in shipbuilding and repairing. A set of propulsion machinery, once completed, can be stored whilst awaiting completion of the hull of the ship. This allows work to begin at once on a new plant. The labour force in marine engineering, thus, is more continuously employed.[5] It must also be remembered that marine engineering employs a much smaller range of craft skills than shiprepairing and shipbuilding, and the difficulties of these latter industries are thus avoidable.

Within code numbers 120 and 121 there is a total of 43 establishments. Many of these, although they are geographically separate establishments, are in fact controlled by single large combines, e.g. the largest combine on Tyneside controls a building yard, two repairing yards, and is widely engaged, elsewhere in the valley, upon the manufacture of machine tools, fighting vehicles, and earth moving equipment. Another combine controls two shipbuilding yards, a shiprepairing yard and a large marine engine works, with a total work force of 12,000. Another, smaller group, employs some 5,000 people at its own marine engineering works and shipbuilding yards. There are also commercial and financial connections between firms in the smaller size groups, as well as similar arrangements with and between firms in other groups of the order. These vertical and horizontal connections between many of the shipbuilding and engineering companies located on Tyneside, is another factor that has to be considered closely when planning an Industrial Health Service for the Region.

Machine Tools etc. (Code numbers 122-140).

There are 14 firms in this grouping. As well as containing firms manufacturing machine tools, it includes other types of manufacturing such as boiler manufacture (See Appendix No. 8). The two largest units employ some 4,500 and 3,000 people, respectively. Both these establishments are geographically adjacent, and are owned by the same large industrial combine, mentioned in the last paragraph above. A wide range of heavy engineering products is undertaken by this company. These vary between the manufacture of ordnance, (logically included in code number 141 when made in separate establishments), through heavy duty press and forging equipment, fighting vehicles, brass and steel castings to marine engines for their shipyard mentioned above. The predominant activity, however, of this large firm, is machine-tool manufacture. For this reason both of these establishments are included in this group of code numbers.

The remaining 12 firms in the grouping employ under 500 people and are engaged in either the manufacture of machine tools or "other" engineering tools. The larger units make machine tools and the smaller ones produce the lighter hand tools.

Ordnance and Constructional Engineering (Code Numbers 141-142).

There are 10 establishments in this grouping. Today no ordnance manufacture takeplace on Tyneside in separate establishments solely devoted to it. The only ordnance manufacture, that remains, is included, as mentioned, in the preceding group. All the units in this group are engaged upon constructional engineering of one type or another. This term covers such things as the construction of coke ovens, bulk handling equipment, and the steel framework of buildings. All the establishments are in units employing under 1,000 people.

Miscellaneous Engineering Products (Code Numbers 154-168.

These code numbers are grouped together using principles previously described, (page 57). The grouping covers a wide range of activity (see Appendix No. 8 ). The principal types of industry included within it are mining machinery, heating and ventilating apparatus (mostly for shipping), gas meters, cranes, and other conveying machinery, and pumps (mostly marine).

All these establishments employ under 1,000 people, and this is probably to be expected from the physically smaller type of work which is undertaken. This type of industrial activity does not require such a wide range of heavy equipment and human skills that, for example, shipbuilding does. Furthermore it can be carried on economically with less capital investment, and thus in smaller units. Many of the 16 firms employing 50 people or under are, to a greater or lesser degree, ~~they are~~ sub-contractors to the larger engineering firms, They ~~and~~ tend to make a varied range of components for these larger establishments to assemble into their main products.

Other Non-electrical Engineering (Code No.169).

There are 37 establishments in this group, 25 of whom employ 50 people or less. The difficulties inherent in categorising manufacturing activity accurately are well illustrated by the types of manufacturing that are included in this large "residue" grouping. There are no fewer than 181 types of industrial activity covered by this one code number, and they range from beer engines through lawn mowers and sewing machines to windmills. Only a fraction of this abundance is represented locally. Many of the industries are non-traditional ones for Tyneside, and are located on the trading estates. Such firms manufacture automatic packing machinery, printing machinery, cement mixing machinery, power tools, steam gauges etc. As well as these "new" firms, many of the older establishments supplying the shipbuilding and heavy engineering industry with components, fall within this grouping. Quite a number of the establishments included here are local branches of larger national concerns, which have their main manufacturing plants elsewhere.

Electrical Machinery, Wires and Cables (Code Numbers 170-172).

This group excludes the electronic and radio industries, which are included in the next paragraph. There are only 13 firms in this group, and as stated earlier, they represent the most rapidly expanding fraction of all Tyneside industry, and that which has the greatest potential for expansion in the immediate future. The two largest units both employ some 5,000 people, and they make machinery for the electricity supply industry, namely turbo-generators, and distribution equipment. Together with another independent engineering concern, classified under code number 121, they represent the dominant local interest in the production of nuclear electricity, generating plant.

The remaining 11 establishments in this group are varied in character. Some produce electrical cables and equipment of a specialised nature, whilst others are almost exclusively engaged upon the manufacture of components for larger concerns.

Miscellaneous Electrical Manufacture (Code Numbers 180-199).

This group includes the electronic and radio industries as well as a wide range of electrical component and consumer goods production. All of these plants employ under 1,000 people. They are mostly new to the area, i.e. post-1939, and many are located upon the three trading estates, within the Survey Area. Of the 22 establishments in this group, 50% employ under 50 people and are included in code number 199, which is the "residue" code number for this type of industry. Prominent in the group, as a whole, is the manufacturing of electrical cells and radio valves. Many of the larger units included here represent the local establishments of larger concerns centred elsewhere.

General comments on Order VI.

Out of the total 166 firms in this classification 78 (47.0%) employ 50 people or under. Only 15 (9.0%) are in the class employing over 1,000 people. Together, however, these larger firms employ about 55,000 of the total of 86,000 people in insured employment in this group of industries (see next chapter). There is a large group of 53 medium-sized firms (31.9%) which employ between 100 and 500 workers and account for a total of some 18,500 people.

Firms employing under 500 people are spread more evenly over the full span of industries, included in Order VI, than are the larger units which tend to be confined to shipbuilding, heavy engineering, and electrical machinery manufacture. The concentration of these establishments under code number 169, i.e. "other non-electrical engineering" has already been mentioned, but the larger proportion of establishments in this group which employ under 50 people is noteworthy for present purposes. Establishments employing between 500 and 1,000 people, tend, like the larger ones, to be concentrated in a narrow band of activity, although the firms in this size group extends over a somewhat wider range of industry than do the very large establishments. They tend to be engaged in marine engineering, machine tools, and specialist machinery, and the electronic and radio industries.

The geographic location of industry in

Order VI is of some interest (Appendix Map No.1). Only 6 out of the total of 30 shipbuilding and repairing firms, are located in the North Tyne West and South Tyne West sub-areas, and 3 of these 6 firms lie immediately over the border sub-dividing the region. The remaining 3 firms are the small shipbreaking establishments, all of which lie up-river from Newcastle. In other words, the majority of the shipbuilding and repairing is located along both banks of the final 6 miles of the river Tyne. This simply emphasizes points raised in chapter 4 . No other single industry in this order shows such a striking geographical location. Even marine engineering, although mostly located along the river-side, stretches as far as 12 miles up-stream.

Geographical Distribution of Firms in Order VI.

| N.E. | N.W. | S.E. | S.W. | Total. |
| --- | --- | --- | --- | --- |
| 29. | 48. | 38. | 51. | 166. |

The geographic location of all establishments in Order VI is shown above. Relatively few of them are located in the North East sub-area, but it must be remembered that 6 out of the largest 15 units in this order, are located in this sub-area. The large proportion of establishments in the South West is partially accounted for by the presence of the large Team Valley Trading Estate where some 17 of the firms, in this sub-area, are located. 16 of these employ under 500 people. Only one of the 15 larger units, employing over 1,000 people, lies in the South-West, and 45 of the total of 51 establishments in this sub-area employ under 500 people. In the North-West a large proportion, 43 out of 48 establishments, employ under 500 people, and 37 of these employ under 250. The majority of this latter group of smaller firms is located, in old premises, in the centre or immediate environs of Newcastle, and they are, mostly, engaged upon jobbing and sub-contracting work.

In the South-East a relatively high proportion, 10 out of 38 plants, are in the intermediate size-range, employing 250-500 people. 5 of these intermediate sized firms are ship-repairing yards, and apart from one larger repairing yard in the North-East, they represent all the independent repairing firms on the Tyne (much incidental ship- (5) repairing, is of course, done by shipbuilding firms).

Order XIII.

Food, Drink, and Tobacco Manufacture (Code Numbers 471-547 inclusive.

This group is the second numerically largest group of industrial establishments. The wide range of processes covered by this Order is shown in Appendix No. 8.

The firms in the Code Number grouping 480-492, i.e. baking, confectionery, and biscuit making, are the most numerous, and 25 of the 34 firms so engaged employ under 50 people (Table No. 28). This reflects the tendency for the baking of bread and the making of cakes to be done in small bake-houses serving a few shops, the whole being controlled by a single private or family business. The largest single unit, employing 800 persons is a well-known biscuit making concern with associated companies elsewhere in Great Britain. The two establishments in the intermediate size group (250-500 employees) are both large, mechanised bakeries, which belong to the same national chain organisation of bakery shops and bakehouses. Below this size all but two of the bakeries belong to local independent concerns, and these two exceptions are controlled by another nation-wide baking organisation.

Establishments in Code Number grouping 521-529 manufacture a miscellaneous type of product: margarine, animal food stuffs, the preserving of fish, fruit, and vegetables, and the curing of fish. All but one of these establishments employ under 250 people. A single large firm in the North-East employs some 800 workers, and is engaged upon the preserving and canning of fruit, vegetables, fish and meat products. Again a large proportion, 23 out of 28, in this group are in the smallest size range (under 50 employees).

A similar size pattern is shown by the establishments included in the Code number grouping 506-515, covering the manufacture of milk products and chocolate and sugar confectionery. The two largest of these establishments manufacture sweets. The five establishments in the size range 50-250 employees are modern mechanised dairies, supplying a wide range of retailers throughout the conurbation and outside it. Four of these dairies are owned by local Co-operative Societies. Amongst the 17 smallest establishments there is a wide range of activity, varying from the small private dairy to the establishments that manufacture jams, and other preserves. In this group there is a date-packing factory that has appalling hygienic conditions and in the past has produced some interesting environmental problems. Code number 536 covers the manufacture, and bottling, of soft drinks and mineral waters. There are 24 firms

Type of Industry

Factory Size Groupings by Area & Total

Table 28. Order X111

| Code. | 11-50 | | | | | 51-100 | | | | | 101-250 | | | | | 251-500 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. |
| 471 | | | | 1 | 1 . | | 1 | | | 1. | | | | 1 | 1. | | 1 | | | 1. |
| 480-492 | 11 | 9 | 2 | 3 | 25. | 1. | 1 | | 1 | 3. | 1 | 2 | | | 3. | | | | 2 | 2. |
| 494-499 | | 3 | | 3 | 6. | | | | 1 | 1. | | | | | | | | | | |
| 506-515 | 2 | 10 | | 5 | 17. | | 3 | | | 3. | | 2 | | | 2. | 1 | 1 | | | 2. |
| 521-529 | 12 | 3 | 1 | 7 | 23. | 1 | 1 | | | 2. | | 2 | | | 2. | | | | | |
| 530-535 | | 5 | 2 | 4 | 11. | | 1 | 1 | | 2. | | 2 | | | 2. | | 1 | | | 1. |
| 536 | 2 | 15 | 3 | 3 | 23. | | | | | | | | | | | | 1 | | | 1. |
| 544 | | | | | | | | | | | | | | | | | 1 | | | 1. |
| Total. | 27. | 45. | 8. | 26. | (106) | 2. | 7. | 1. | 2. | (12) | 1. | 8. | | 1. | (10) | 1. | 5. | | 2. | (8) |

| Code. | 501-1000 | | | | | 1001-2000 | Grand Total |
|---|---|---|---|---|---|---|---|
| 471 | | | | | | | |
| 480-492 | | | 1 | | 1. | | |
| 494-499 | | | | | | | |
| 506-515 | | | | | | | |
| 521-529 | 1 | | | | 1. | | (139) |
| 530-535 | | | | | | | |
| 536 | | | | | | | |
| 544 | | 1 | | | 1. | | |
| Total. | 1 | 1 | 1 | | (3) | | |

so engaged and 23 of them employ under 50 workers. The single large firm, employing some 350 people, produces a well advertised, and much consumed, invalid glucose drink. It is a subsidiary of a large national combine producing a wide range of patent remedies and toilet products.

The brewing and bottling industry (Code Numbers 530-535) has 16 establishments locally. The highly mechanised nature of the processes allow them to employ relatively few workers in relation to the value of their products. Of these, five are breweries, owned by local concerns, ~~and employing under 50 people~~, whilst the remainder are all wholesale bottling stores, for beer and spirits, and are owned by larger brewing concerns centred outside the area.

Of the remaining industries inthe order, only grain milling (Code Number 471), and cigarettes and tobacco manufacture (Code Number 544), call for any comment. Grain milling, like brewing, has become a highly automatic process and the capacity of the mills is related more to the amount of machinery used within them, than to the small number of workers employed. The output of these mills is, in contrast with much of local industry, extremely high in relation to the number of people employed. All these four establishments are controlled by large national concerns, and all, except one, have been founded within the last 25 years. Two of them are amongst the most modern plants, of their type, in the country. Cigarettes are produced in two plants, both owned by the same large corporation centred in the West Country. The largest, employing some 900 persons, is only 5 years old and the facilities it provides for its Health Service will be commented upon in detail later.

The geographical location of these industries is shown below (See Appendix Map No.2).

| N.E. | N.W. | S.E. | S.W. | Total. |
|---|---|---|---|---|
| 32. | 66. | 10. | 31. | 139. |

An interesting point about this distribution is the relative absence of the food-producing industry in the heavily industrialised towns of Hebburn, Jarrow, and South Shields, i.e. the South-East. Furthermore, 8 out of the 10 establishments in this sub-area employ under 50 people. Only a single establishment - a biscuit factory in South Shields is of any size, and it employs some 800 people, nearly all women. Apart from this the only other unit employing more than 50 persons is a small brewery employing some 58 workers. There are living in this sub-area some 160,000 people, or roughly one fifth of the total population of the whole conurbation; this is a measure of the under-representation in this sub-area of this type of industry.

Type of Industry

Factory Size Groupings by Area & Total

Table 29. Order X1V

| CODE | 11-50 | | | | | 51-100 | | | | | 101-250 | | | | | 251-500 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. |
| 554 | 2 | 7 | 16 | 2 | 27. | 3 | 2 | | | 5. | 1 | | | | 1. | 1 | | | | 1. |
| 559 | | 3 | | 1 | 4. | | | | 1 | 1. | | | | | | | | | | |
| 566 | | 7 | 2 | 1 | 10. | | 2 | | | 2. | | 2 | | 3 | 5. | 1 | | | | 1. |
| 569-589 | 3 | 10 | 1 | 4 | 18. | 1 | 2 | | | 3. | | 1 | | 1 | 2. | | | | | |
| Total. | 5 | 27 | 19 | 8 | (59) | 4 | 6 | | 1 | (11) | 1 | 3 | | 4 | (8) | 2 | | | | (2) |

| CODE | 501-1000 | | | | | Grand Total |
|---|---|---|---|---|---|---|
| 554 | | | | | | |
| 559 | | | | | | (81) |
| 566 | | | | | | |
| 569-589 | 1 | | | | 1. | |
| Total | 1 | | | | (1) | |

establishments within grouping 569-589 are located in the North East region, whilst all the box making firms in this group are located in the north east.

The geographical location of this Order is shown below (See Appendix Map No. 3).

| N.E. | N.W. | S.E. | S.W. | Total. |
|---|---|---|---|---|
| 13. | 36. | 19. | 13. | 81. |

Of the 19 firms in the south east employing under 50 people, [redacted] 16 are small [redacted] saw milling concerns. Whilst a further 27 of the total 59 firms employing under 50 people are in the north west. Only [redacted] 5 of these smallest sized establishments lie in the [redacted] north-east region.

Order XV.

Paper and Printing (Code Numbers 594/623)

Like the other orders this one has been contracted for easier description, on the basis of principles already explained. Code-number grouping 594-600 includes the manufacturing of raw paper and paper products such as wall paper. Code numbers 601-608 cover paper manufactures such as boxes, bags, and stationery. Code number 612 represents the publication of newspapers, periodicals, etc., and Code number 623 covers other publishing, printing and binding. There are 64 firms in this last [redacted] group, and 51 of these firms employ under 50 people (Table No. 30). 3 firms are engaged upon the actual manufacture of paper locally, and all of them employ between 100 and 500 employees. 12 firms are engaged in the manufacture of paper products and all of them are confined to the manufacture of boxes, cartons and paper bags. Only 2 firms publish and print newspapers; one, the largest concern in the whole order, employs almost 1,000 people, and produces the main local morning and evening papers, and is a large subsidiary in a national newspaper group. A smaller newspaper is published, in the evenings, in South Shields. Over all, 68 of the 81 firms employ less than 100 people. The geographical distribution is shown below (See Appendix Map No. 4).

| N.E. | N.W. | S.E. | S.W. | Total. |
|---|---|---|---|---|
| 4. | 47. | 10. | 20. | 81. |

The preponderance of this Order of Industry in the north west is most striking. Some 35 of the 47 firms in this sub-area are in the under-50 group, and of these 33 are engaged upon "Other Printing and publishing". For the most part

Type of Industry

Factory Size Groupings by Area & Total

Order No. XV. Table No. 30

| CODE | 11-50 | | | | | 51-100 | | | | | 101-250 | | | | | 251-500 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. |
| 594-600 | | | | | | | | | | | | | 1 | 1 | 2. | | | 1 | | 1. |
| 601-608 | | 2 | | 3 | 5. | | 1 | | 2 | 3. | | | | 3 | 3. | | 1 | | | 1. |
| 612 | | | 1 | | 1. | | | | | | | | | | | | | | | |
| 623 | 3 | 33 | 6 | 9 | 51. | 1 | 6 | 1 | | 8. | | 3 | | 2 | 5. | | | | | |
| Total | 3 | 35 | 7 | 12 | (57) | 1 | 7 | 1 | 2 | (11) | | 3 | 1 | 6 | (10) | | 1 | 1 | | (2) |

| Code | 501-1000 | | | | | Grand Total |
|---|---|---|---|---|---|---|
| 594-600 | | | | | | |
| 601-608 | | | | | | |
| 612 | | 1 | | | 1. | (81) |
| 623 | | | | | | |
| Total | | 1 | | | (1) | |

these are small jobbing printing firms located in the commercial centre of Newcastle, from whence they obtain a large proportion of their trade. Out of the total of 64 firms listed under Code number 623, i.e. "other printing etc.", 42 are in fact located in the central area of Newcastle. There is a smaller centre of printing in Gateshead, that is 11 firms in this town. The processing of paper (Code numbers 601-608) is done exclusively in the North-West and South West, there being 4 and 8 firms respectively in each of these sub-areas, and as already stated they are exclusively engaged upon the making of paper bags, boxes, cartons, etc. All but one of the firms processing paper in the south west is located in the Team Valley Trading Estate, and one of the firms in this [redacted] is engaged upon the highly specialised trade of printing bank-notes for overseas currencies.

Order VIII.

Metal Goods (not elsewhere specified)(Code Numbers 254-289).

There are 76 firms in this group covering a wide span of productive industry (See Appendix 8). A large proportion of the establishments, 37 of the total, lies in the grouping of code numbers 284-289)Table No.31). This is due to the wide collection of trades in the "residue" code number 289 - "other metal industries". This single code number covers some 140 different types of activity, which range from boot trees and mousetraps, to umbrella frames. Only a fraction of these industries are represented on Tyneside, and many of those which are, are suppliers to the shipbuilding and engineering industries. This categorization explains the disproportionately large number of establishments in this grouping. 33 of these 37 firms employ less than 50 people, and their diversity is too great to warrant further comment.

The firms grouped under code numbers 270-279 manufacture the group of products generally known as "metal small-ware", i.e. locks, keys, needles, metal furniture and brass manufactures. It is this latter type of activity that engages most of the firms in this grouping. They produce, for example, ships lamps, and steam and other pressure gauges for the engineering and shipbuilding industries. 12 out ofthe 17 firms in this group employ under 50 people.

The 14 firms under grouping 262-265 make a wide range of products. The largest establishment makes wire ropes for the shipping industry, in an old established plant near the riverside. Until relatively recently this firm was almost exclusively engaged upon the manufacture of hemp ropes, which in fact still forms a fair proportion of its activities. Further comment is made

Type of Industry

## Factory Size Groupings by Area & Total

Table 31. Order V111

| CODE | 11-50 | | | | | 51-100 | | | | | 101-250 | | | | | 251-500 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. |
| 254-261 | | 1 | | 3 | 4. | | | | 2 | 2. | | | | 1 | 1. | | | | | |
| 262-265 | | 3 | 1 | 4 | 8. | | 1 | | | 1. | | 1 | | 2 | 3. | | | | | |
| 270-279 | 3 | 4 | 1 | 4 | 12. | 1 | | 1 | 1 | 3. | 1 | | | | 1. | | | 1 | | 1. |
| 284-289 | 3 | 18 | 3 | 9 | 33. | 1 | 1 | | 1 | 3. | | 1 | | | 1. | | | | | |
| Total | 6 | 26 | 5 | 20 | (57) | 2 | 2 | 1 | 4 | (9) | 1 | 2 | | 3 | (6) | | | 1 | | (1) |

| | 501-1000 | | | | | 1001-2000 | | | | | 2001-5000 | 5000+ | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 254-261 | | 1 | | | 1. | | | | | | | | |
| 262-265 | | 1 | | | 1. | 1 | | | | 1. | | | |
| 270-279 | | | | | | | | | | | | | |
| 284-289 | | | | | | | | | | | | | (76) |
| Total | | 2 | | | (2) | 1 | | | | (1) | | | |

upon this establishment when the insured population is considered in chapter 9 , as it provides a prominent example of the different classification of the same industrial establishment sometimes used by the Board of Trade on the one hand, and the Ministry of Labour on the other. The second largest establishment in this grouping manufactures metal boxes, and is controlled by a large nationwide organisation which exclusively produces this type of manufacture. The remaining establishments in this grouping either make such things as wire baskets and other wire products, or produce hollowware such as drums and other containers. A smaller proportion, 8 out of 14 firms, are in the smallest size-groups. Finally in this order, 8 firms in grouping 254-261 are engaged upon producing other small iron and steel goods. A single medium-sized establishment, i.e. employing 600 people, produces laminated springs in a dilapidated old works on the North West edge of the conurbation. ~~The remaining~~ 5 in this grouping are concentrated in the central parts of Gateshead in the south west.

Geographic Distribution of Order VIII Industries.

| N.E. | N.W. | S.E. | S.W. | Total. |
|---|---|---|---|---|
| 10. | 32. | 7. | 27. | 76. |

Again the preponderance of the establishments is seen to be located in the North West sub-region (See appendix Map no. 5). This is due to the 18 establishments employing under 50 people in the Code number 289. These factories, like so many others of the smallest size in other orders, belong to the older jobbing and sub-contracting type of concerns. The larger number in the South West, as compared with the North East and South East, is in part due to 8 of the firms being located on the Team Valley Trading Estate. These are producing either metal hollow ware, wire baskets, or forgings.

Order XII.

Clothing (Code Numbers 410/461).

There always has been, to a minor extent, a local clothing industry, but it was mostly made up of small firms operating on the fringe of the industry. Recently, firms in search of an adequate labour force, not available in other traditional clothing manufacturing areas, have established themselves on Tyneside, because of its local reserve of female labour. 6 This has considerably increased the local representation of this industry over the last 15 years. The range of industries in this order is grouped into tailoring (Code No. 410), dressmaking (Code No.421), other small goods and millinery (Code numbers 434-459), and boots and shoes (Code numbers 460-461).

Type of Industry

Factory Size Groupings by Area & Total

Table 32. Order No. X11

| Code | 11-50 | | | | | 51-100 | | | | | 101-250 | | | | | 251-500 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. |
| 410 | | 6 | 2 | 3 | 11. | | 5 | 1 | 2 | 8. | | 1 | | 2 | 3. | | | | | |
| 421 | | 11 | | | 11. | 1 | 2 | | 1 | 4. | | 7 | | 3 | 10. | 1 | | | | 1. |
| 434-459 | | 3 | | 1 | 4. | 1 | | | | 1. | | | 1 | 1 | 2. | 1 | | | | 1. |
| 460-461 | | 2 | 2 | 2 | 6. | | 1 | | | 1. | | | | 1 | 1. | | | | | |
| Total | | 22 | 4 | 6 | (32) | 2 | 8 | 1 | 3 | (14) | | 8 | 1 | 7 | (16) | 2 | | | | (2) |

| Code | 501-1000 | | | | | 1001-2000 | | | | | 2001-5000 | 5000+ | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 410 | | | | 3 | 3. | | | 1 | | 1. | | | |
| 421 | | | | | | | | | | | | | |
| 434-459 | | | | | | | | | | | | | (68) |
| 460-461 | | | | | | | | | | | | | |
| Total | | | | 3 | (3) | | | 1 | | (1) | | | |

There is no mass manufacture of boots and shoes locally, and all the firms included in the last grouping are engaged solely upon repairing.

There are 68 firms in Order XII on Tyneside (Table No. 32). Six employ over 250 people and have all been established recently; the four largest ones, all tailoring factories, are subsidiaries of multiple companies. There are three of these tailoring firms in the south west and two are located on the Team Valley Trading Estate. Two in the North-East employ 300 - 400 people, and are located on the smaller Chirton Trading Estate; they are dressmakers and lingerie manufacturers respectively. The largest firm of all, mass producing mens' clothing, is situated in South Shields, and is a post-War development. It was presumably attracted to this town because of the particularly large reserve of labour available there.

The total number of firms engaged upon tailoring and dressmaking is 52, and they are equally divided between these two types of activity. The larger units, however, i.e. those employing over 500, are all engaged upon tailoring. The distribution, among size-groups, is less heavily biased in these trades, towards the smallest units.

There are only eight firms making small-wear, and a similar number upon the repairing of boots and shoes. The size distibution of these calls for no particular comment, other than that they are the type of industry which operates in very small establishments, i.e. employing under 10 people. The true distribution of this type of activity is probably not shown up by the present Census.

Geographical Distribution of Order XII.

| N.E. | N.W. | S.E. | S.W. | Total. |
|---|---|---|---|---|
| 4. | 38. | 7. | 19. | 68. |

The geographical and size distributions shows the importance of Newcastle as the centre of the old clothing industry, particularly dressmaking, with its high proportion of small units. (See Appendix Map No. 6). Thirty out of thirty-eight establishments in the North-West employ under 100 people. All the clothing firms in Newcastle are located in two closely packed concentrations in the western-centre of the town. The majority of these factories are located in converted terraced houses. The influence of the Team Valley Trading Estate is shown by the proportionately large number of factories in the South West sub-area. Until the Chirton Estate, converted from an old Ministry of Supply ammunition factory, was opened after World War II, there were no clothing firms outside the North-West and South-West sub-areas. Three, of the present four, firms in the North-East sub-area, are on this trading estate. The position in the South-East has been touched upon already; the six other firms in this sub-area are, for the most part, old-established small firms, although one medium-sized underwear firm is a recent development.

## Order VII - Vehicles.

## Code Numbers 204-241.

In this Order the activities involving the motor industry, Code numbers 204-230 have been separated from the others, Code numbers 231-241, which in this area are factories producing railway rolling stock.

There are 3 establishments in the latter grouping. The largest manufactures steam and diesel locomotives and employs some 600 people. This works was the original factory of George Stevenson and the "Rocket" was built here. It is located in an old part of the centre of Newcastle. Recently it has been incorporated into a large engineering, electrical and air-craft manufacturing combine, which has begun to acquire interests in Tyneside industry on a considerable scale. The other two firms in this code grouping repair railway wagons. ~~The decline of the once important, railway engineering industry can be judged from its present unimportance.~~

The 63 firms connected with the motor industry are largely garages engaged upon repair work. All the 57 firms employing under 100 people, are of this type (Again, the much more numerous, small garages, employing under 10 persons, will not be revealed by this Census). Three of the firms in size group 100-250 employees are coach builders of passenger vehicles, these being built upon chasses produced elsewhere. Another firm in this size group assembles and services, vehicles for the Ministry of Supply. The single firm in the North-West sub-area which employs over 1,000 people, is a motor transport corporation. It is included in this Census for the simple reason that the information supplied by the Board of Trade classified it here. It is suggested that this is a misclassification, and whilst a proportion of its employees are no doubt engaged upon the repairing of the buses used by the Corporation, it would probably be more accurately classified under Order XIX, Code numbers 720 (Motor Transport). [1] It is not considered further in this Survey.

The geographical distribution in this area reflects the predominant number of garages in the

Type of Industry

Factory Size Groupings by Area & Total

Table 33. Order V11

| Code | 11-50 | | | | | 51-100 | | | | | 101-250 | | | | | 251-500 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. |
| 204-230 | 8 | 37 | 3 | 5 | 53. | | 2 | 2 | | 4. | | 3 | | 2 | 5. | | | | | |
| 231-241 | | | | | | 1 | | | 1 | 2. | | | | | | | | | | |
| Total | 8 | 37 | 3 | 5 | (53) | 1 | 2 | 2 | 1 | (6) | | 3 | | 2 | (5) | | | | | |

| Code | 501-1000 | | | | | 1001-2000 | | | | | 2001-5000 | 5000+ | Grand Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 204-230 | | | | | | | 1 | | | 1. | | | |
| 231-241 | | 1 | | | 1. | | | | | | | | |
| Total | | 1 | | | (1) | | 1 | | | (1) | | | (66) |

Newcastle area.

| N.E. | N.W. | S.E. | S.W. | Total. |
|---|---|---|---|---|
| 9. | 44. | 5. | 8. | 66. |

Presumably the other areas are adequately served by garages, the majority of which employ under 11 people and so do not appear in the census.

Order IV.

Chemical and Allied Trades. (Code numbers 060-087).

This order has been artificially grouped to reflect the local pattern of its activity.

The Grouping Numbers 060-065 contains one small fertiliser plant and one company who are marketing tar and bitumen by-products, obtained from the nationally owned coke ovens (Table No.34). These latter industries, the coke ovens, are numerous on Tyneside and are excluded from the scope of the survey as they, like the mines which are also excluded, lie under the control of the National Coal Board, and are adequately served by tha industry's Industrial Health Service. 9 Grouping 066-072 includes the paint industry and the majority of its local suppliers of raw materials; Grouping 074-087 contains firms supplying and refining mineral and lubricating oils, the newly developing pharmaceutical industry and the soap and detergent manufacturing industry.

Two large paint concerns dominate the local paint industry. This industry, like grain milling, is highly mechanised, and in relation to the value of its product the labour force is minute. One firm employs over 2,000 people, who are scattered in some 7 establishments over the whole of Tyneside. It also has interests in Order XVI, i.e. in the production of plastics. The second concern is centred in four establishments, concentrated in a small area on the borders of the South-East and South-West sub-divisions. Like the preceding concern it has interests which lie outside the immediate production of paint, such as the manufacture of steel drums and containers. All the remaining establishments, in the grouping 066-072 are in the smallest size group, and they mostly fall under the "residue" code numbers 069 - "other chemicals". Their products range from "Drugs" to the recovery of selenium from old electrical cells.

Two of the establishments employing between 250-500 people in the grouping numbers 074-087 belong to an expanding pharmaceutical group of companies which produces several patent remedies.

Type of Industry

Factory Size Groupings by Area & Total

Table 34. Order 1V

| Code. | 11-50 | | | | | 51-100 | | | | | 101-250 | | | | | 251-500 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. |
| 060-065 | 1 | | | 1 | 2. | | | | | | | | | | | | | | | |
| 066-072 | | 9 | 1 | 6 | 16. | 1 | 1 | 1 | 1 | 4. | 1 | | 2 | 1 | 4. | | | | | |
| 074-087 | | 3 | 2 | 5 | 10. | | 1 | | 1 | 2. | | 1. | | 2 | 3. | | 2 | | | 2. |
| Total | 1 | 12 | 3 | 12 | (28) | 1 | 2 | 1 | 2 | (6) | 1 | 1 | 2 | 3 | (7) | | 2 | | | (2) |

| Code. | 501-1000 | | 1001-2000 | 2001-5000 | 5000+ | Grand Total |
|---|---|---|---|---|---|---|
| 060-065 | | | | | | |
| 066-072 | 1 | 1. | | | | |
| 074-087 | 1 | 1. | | | | (45) |
| Total | 2 | (2) | | | | |

It is now entering the field of "ethical" pharmaceutical products. The largest factory in this grouping belongs to an Anglo-American Corporation, producing a wide range of domestic soaps and detergents. The administrative offices of this corporation are situated on Tyneside also. There is a small soap works in the south west region which employs some 230 people, and belongs to the Co-operative organisation. Most of the remainder of the firms in this grouping employ under 100 people, and are engaged in a variety of industries, the range of which is shown in the Appendix. One, worthy of note, employs 210 people in the North-West and produces glues from slaughter house offals.

## Order III.

## Non-Metalliferous Mining Products (Code Numbers 044-059)

There are 42 firms in this Order (Table 35), and it contains those establishments that make bricks, pottery, and fire-clay goods (Code numbers 044-050) and glass, cast stone, and concrete products (Code numbers 051-059).

The two largest firms in the whole order each employ over 600 people, and are engaged, respectively, on the machine and hand blowing of glass-ware, and upon the production of highly specialised fused silica vessels and tubing. The former establishment is on the site of one of the old Hugenot glass factories, and the history of glass working among some of its population has been traced back, through family connections, over two centuries. 10 10 firms employ between 100 and 500 people and make a variety of goods. Of the 5 in the North-West 2 make bricks, and an other is a well known sanitary pottery manufacturer. Of the 7 other firms in this size range, 6 make concrete castings and the other is an old established glass-works, famous for its fine, blown and spun, table glass-ware. Of the 30 firms employing under 100 people, 6 make bricks and one makes sanitary pipes, and the remaining 23 are all engaged upon the manufacture of concrete products, such as pipes, building slabs, beams etc.

The geographical distribution is shown below.

| N.E. | N.W. | S.E. | S.W. | Total. |
|---|---|---|---|---|
| 1. | 14. | 6. | 21. | 42. |

The striking factor of the geographical breakdown is the almost total absence of this type of industry in the North-East sub-area. This is partially due to the absence there of clay for brick-making, and sand for concrete working. 11 There is a large concentration of this latter type of work in this South-West sub-area, and some two thirds of the firms engaged there upon it employ

Type of Industry

## Factory Size Groupings by Area & Total

Table 35. Order No.111.

| Code. | 11-50 NE. | 11-50 NW. | 11-50 SE. | 11-50 SW. | 11-50 Total. | 51-100 NE. | 51-100 NW. | 51-100 SE. | 51-100 SW. | 51-100 Total. | 101-250 NE. | 101-250 NW. | 101-250 SE. | 101-250 SW. | 101-250 Total. | 251-500 NE. | 251-500 NW. | 251-500 SE. | 251-500 SW. | 251-500 Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 044-050 | | 3 | | 2 | 5. | | | | 2 | 2. | | 2 | | | 2. | | 1 | | | 1. |
| 051-059 | | 5 | 3 | 14 | 22. | | | | 1 | 1. | | 1 | 2 | 2. | 5. | | 1 | 1 | | 2. |
| Total | | 8 | 3 | 16 | (27) | | | | 3 | (3) | | 3 | 2 | 2 | (7) | | 2 | 1 | | (3) |

| Code. | 501-1000 | | | | | 1001-2000 | 2001-5000 | 5000+ | Grand Total |
|---|---|---|---|---|---|---|---|---|---|
| 044-050 | 1 | 1 | | | | | | | |
| 051-059 | 1 | 1 | | | 2 | | | | (42) |
| Total | 1 | 1 | | | (2) | | | | |

under 50 people. There is an ample supply of sand and gravel in the area at the mouth of the River Team in the South-West, and this probably explains this concentration.

Order V.

Metal Manufacture - Code Numbers 090-199.

There are 32 firms in this order (Table 36), and there are two groupings within it. Code numbers 090-111 covers the production and working of ferrous metals, and code numbers 114-119 covers the production and working of non-ferrous metals. There are 21 firms in the former grouping and 11 in the latter. Two of the three establishments of the 500-1,000 size group are owned by the same concern, one making grey-iron castings, and the other steel castings. This firm has strong local connections, and, in contrast with so many of the locally-controlled companies, has provided a fairly comprehensive Industrial Health Service for its employees. This point of contrast between the attitude of locally controlled and non-locally controlled companies towards the health of their work people will be commented on further in Chapter 21 . The third establishment in the size group 500-1,000 employees, is a local factory of a Tyneside steel-producing company whose main works lie just outside the Survey Area. This establishment is a steel rolling mill in Jarrow, and it was located there as the space was available for its long buildings on the site of the derelict Palmers' shipyard.

Eight of the eleven medium sized firms (100-500 people) work ferrous metals. There is one steel tube drawing establishment in this group which employs some 300 people, but the rest are either casting shops or small rolling mills. The latter group, too, supplies materials to the ship-building and constructional engineering industries. Two of the non-ferrous metal plants in the same size group are lead works. One produces, together with a wide range of lead products, some of the hazardous white lead by the old fashioned "chamber" process, (this is logically includable under Code number 068), and the other smelts ore to make the pure metal. Both are controlled by the same large national lead-producing combine, and the company, being aware of the hazardous nature of this product, pays great attention to environmental conditions. Another establishment of the same firm manufactures the rare metals antimony and zirconium.

In the smallest size group, the proportion of non-ferrous metal working establishments increases to 7 out of 15, and all these seven factories are engaged upon the manufacture of brass, and brass castings, mostly for the marine engineering industry.

Type of Industry

Factory Size Groupings by Area & Total.

Table 36. Ofder No.5.

| Code | 11-50 | | | | | 51-100 | | | | | 101-250 | | | | | 251-500 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. |
| 090-111 | 1 | 3 | 2 | 2 | 8. | | 1 | 1 | | 2. | 1 | 1 | 1 | 1 | 4. | | | 2 | 2 | 4. |
| 114-119 | 1 | | 2 | 4 | 7. | | | 1 | | 1. | | 1 | 1 | | 2. | 1 | | | | 1. |
| Total. | 2 | 3 | 4 | 6 | (15) | | 1 | 2 | | (3) | 1 | 2 | 2 | 1 | (6) | 1 | | 2 | 2 | (5) |

| Code | 501-1000 | | | | | 1001-2000 | 2001-5000 | 5000+ | Grand Total |
|---|---|---|---|---|---|---|---|---|---|
| 090-111 | | | 1 | 2 | 3. | | | | |
| 114-119 | | | | | | | | | (32) |
| Total. | | | 1 | 2 | (3) | | | | |

The geographical distribution of industries in this order does not call for any special comment.

Order XVI.

Other Manufacturing Industries (Code numbers 638-669).

There are 28 industrial establishments in this order (Table 37). For easier description they have been divided into two equal groups. Code number 638-655 contain a single new factory manufacturing rubber tubing and hose, and numerous other smaller establishments manufacturing toys, games, and brushes. These smallest firms are all within the toy and "novelty" industry, and they produce a wide variety of play-things, from paper hats to Christmas crackers. The two largest firms in the grouping 666-669 both produce laminated plastic material for the furniture trade. The remaining 12 in this grouping produce a wide variety of products under code number 669 which is another "residue" code number, and contains some 105 types of manufacture. The particular type of firm on Tyneside that is included in this group are those engaged upon insulating work, particularly of boilers and ships' interiors. The geographical distribution is shown below.

| N.E. | N.W. | S.E. | S.W. | Total. |
|---|---|---|---|---|
| 3. | 15. | 2. | 8. | 28. |

The concentration in the North West is again prominent and is due to 14 of the smallest size group of establishments being located here. Eight of these are small toy manufacturers and such, and the remainder include insulating, and brush-making establishments. A secondary smaller concentration of this Order occurs in the South-West, where all the firms are located on the Team Valley Trading Estate.

Order IX.

Precision Instruments etc. (Code Numbers 294-309).

There are 11 firms in the grouping 299-298 (Table 38), which covers the manufacture of photographic equipment and optical instruments, as well as a wide range of surgical and scientific instruments. Only one of these firms calls for comment. This is the sole remaining British firm engaged upon the manufacture of large astronomical telescopes. By accident this firm is located on Tyneside, as the original concern belonged to Sir Howard Grubb, who manufactured during his lifetime, a large proportion of the world's telescopes. Grubb and Sir Charles Parsons were great friends and when the concern came upon bad times shortly after Grubb's death, Parsons bought

Type of Industry

Factory Size Groupings by Area & Total

Table 37. Order No. XVl

| Code | 11-50 NE. | NW. | SE. | SW. | Total. | 51-100 NE. | NW. | SE. | SW. | Total. | 101-250 NE. | NW. | SE. | SW. | Total. | 251-500 NE. | NW. | SE. | SW. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 638-655 | | 8 | | 2 | 10. | | 1 | | | 1. | | | | 1 | 1. | | | 1 | | 1. |
| 666-669 | | 6 | | 3 | 9. | 1 | 1 | 1 | 1 | 3. | | | | 1 | 1. | 1 | | | | 1. |
| Total | | 14 | | 5 | (19) | 1 | 1 | 1 | 1 | (4) | | | | 2 | (2) | 1 | | 1 | | (2) |

| Code | 501-1000 | 1001-2000 NE. | Total. | | Grand Total |
|---|---|---|---|---|---|
| 638-655 | | | | | |
| 666-669 | | 1 | 1. | | (28) |
| Total | | 1 | (1) | | |

up the firm and resettled it on Tyneside. (12) Today it is part of the large Parson's electro-turbo-generating establishment. The majority of the other firms in this grouping are manufacturing opticians, although 3 of them make nautical instruments, which are almost all sold to the shipyards. Code grouping 300-309 on Tyneside contains only places manufacturing and repairing clocks and watches. There are 3 of these and they are all in the size group employing under 50 people. In fact, they are all more concerned with the maintenance of nautical instruments, than with the repairing of simple time-pieces.

Order XI.

Leather and Leather Goods, Code numbers 394/401.

There are 10 firms in this small industrial order (Table 38), the two largest places tan and dress the leather, and the remainder are all small firms, employing under 50 people, who make the leather into such things as handbags and suitcases. Seven out of ten firms are located in the North-West, and this geographical location is probably explained, particularly in the case of the two tanning and dressing factories, by the presence, in Newcastle, of the largest regional stock-market, and its adjoining slaughter house, which provides the hide for the tanneries.

Order X - Textiles (Code Numbers 310-382).

There is only one firm engaged in the code grouping 310-351(Table 38) which covers the manufacture of all forms of cloth, from their raw materials. This is a small weaving factory producing specialised woollen cloths in a new factory on the Team Valley Trading Estate. The remaining 7 establishments are in Code grouping 352-389, which covers the making up and finishing of all types of textiles. These 7 establishments. cover a wide range of products. Of the two largest employing between 300 and 400 people, one produces hemp rope and twine in a very old factory near Gateshead. The other firm, in a new factory on the Bede Trading Estate in the South-East, knits a synthetic fibre into various types of garments. Of the remainder of the firms in this grouping, two establishments produce asbestos insulating material in modern buildings, whose environmental hygienic control is excellent. The remainder call for no comment, neither does the geographical distribution within this order

Type of Industry

Factory Size Groupings by Area & Total

Table 38. Order 1X

| Code | 11-50 | | | | | 51-100 | | | | | 101-250 | | | | | 251-500 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | NE. | NW. | SE. | SW. | Total. | Grand Total |
| 294-298 | 2 | 5 | | 2 | 9. | 1 | 1 | | | 2. | | | | | | | | | | | |
| 300-309 | | 2 | 1 | | 3. | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | (14) |
| Total. | 2 | 7 | 1 | 2 | (12) | 1 | 1 | | | (2) | | | | | | | | | | | |

Table 38. Order X

| Code | 11-50 | | | | | 51-100 | | | | | 101-250 | | | | | 251-500 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 310-351 | | | | 1 | 1. | | | | | | | | | | | | | | | | |
| 352-389 | 1 | 1 | | | 2. | 1 | 2 | | | 3. | | | | | | | | 1 | 1 | 2. | |
| | | | | | | | | | | | | | | | | | | | | | (8) |
| Total. | 1 | 1 | | 1 | (3) | 1 | 2 | | | (3) | | | | | | | | 1 | 1 | (2) | |

Table 38. Order X1

| Code | 11-50 | | | | | 51-100 | | | | | 101-250 | | | | | 251-500 | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 394-401 | | 5 | 1 | 2 | 8. | | | | | | | 2 | | | 2. | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | (10) |
| Total. | | 5 | 1 | 2 | (8) | | | | | | | 2 | | | (2) | | | | | | |

Conclusion

The overall geographic distribution of all the Survey Factories is shown below:

| Area. | N.E. | N.W. | S.E. | S.W. | Total. |
|---|---|---|---|---|---|
| No. of Factories. | 117. | 383 | 124 | 232 | 856. |

The dominating position of the North-West sub-area is clearly demonstrated. The presence of the large Trading Estate in the South-West brings this sub-area into a relatively more favourable position than the remaining two sub areas. When considering this position it must be remembered that the majority of the shipbuilding and repairing yards are in the North-East and South-East. These are all large or medium sized establishments and the industrial discrepancies between the areas are not so marked when the working population is considered (see next chapter).

When the Industrial Orders are considered the proponderance of Order VI need be stressed no further. It is a point which will, however, continue to recurr in the following chapters where the population and the existing health service of Tyneside Industry are surveyed. The rising influence of those industries included in Code Numbers 170-172, i.e. "Electrical Machinery, Wires and Cables" must be especially commented upon. It may be, that in future years this sector of the Engineering Industries will come to occupy the place of importance on Tyneside at present held by shipbuilding. Furthermore, the entry into Tyneside of "lighter" types of engineering is continuing and will lessen the present dependence of the area upon the "heavier" types of work. This alteration in the balance of the engineering industries should result in some major alterations in the geographical distribution of industry. The importance of the riverside strip of land will decrease as the newer industries do not need to be close to the water. The present dependence of the South Bank communities on the traditional engineering and shipbuilding industries will probably decrease. The extent to which the Team Valley Estate has altered this position in the South-West as compared with the North East and South East has been repeatedly demonstrated. This pattern will probably be followed in the future in these latter two sub-areas.

There is room for geographic diversification away from Newcastle into the other sub-areas in a number of industries which are unduly concentrated there. Food and Drink manufacture, paper and printing, and clothing manufacture are prominent examples of these. The large number of small units, which are made up of each of these industries, account for the disproportionately large share of the very large total number of factories employing under 100 people, which are found in the City of Newcastle. Thus any geographic redistribution

Table No. 40 **Totals of the Factory Groupings by Areas.**

| ORDER OF INDUSTRY. | NE. | N.W. | S.E. | S.W. | TOTAL. |
|---|---|---|---|---|---|
| III. | 1. | 14. | 6. | 21. | 42. |
| IV. | 3. | 19. | 6. | 17. | 45. |
| V. | 4. | 6. | 11. | 11. | 32. |
| VI. | 29. | 48. | 38. | 51. | 166. |
| VII. | 9. | 44. | 5. | 8. | 66. |
| VIII. | 10. | 32. | 7. | 27. | 76. |
| IX. | 3. | 8. | 1. | 2. | 14. |
| X. | 2. | 3. | 1. | 2. | 8. |
| XI. | | 7. | 1. | 2. | 10. |
| XII. | 4. | 38. | 7. | 19. | 68. |
| XIII. | 32. | 66. | 10. | 31. | 139. |
| XIV. | 13. | 36. | 19. | 13. | 81. |
| XV. | 4. | 47. | 10. | 20. | 81. |
| XVI. | 3. | 15. | 2. | 8. | 28. |
| | 117. | 383. | 124. | 232. | 856. |

of these industries may also bring with it, or result from, a rationalisation of their size structure.

The place of Industries in Order VII - Vehicles, will probably show at least some geographic alteration as well as an overall expansion in the coming decade. The increasingly widespread use of private motor vehicles may well mean that the present predominance of Newcastle in this respect will decrease. The increasingly prosperous population working in the industries of the other sub-areas, will demand service for their newly acquired vehicles. It would seem that this industry will continue to be made up of a very large number of relatively small units so long as its main local function is the repairing, as opposed to the building, of vehicles.

It must be reiterated that only a fraction of the total industrial and commercial work being carried out in the Tyne Valley is covered by the Survey Industries. A greatly larger number of factories, namely those which employ under 11 people, have been excluded from the Survey, although they actually are covered by the Survey Industrial Orders. The people who work in this limited range of Survey Factories and Industries are the subject of the following two chapters.

<u>References - Chapter 8.</u>

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## Chapter 9.

## Distribution of the Working Population within Industry on Tyneside.

### Introduction. (1)

The size distribution of the industrial establishments considered in the last chapter was based upon information obtained from the Factory Inspectorate. The limitations of this material have been discussed. The distribution of the working population throughout Tyneside industry must be, therefore, estimated from other and more accurate sources of information, and this will now be considered.

The most comprehensive estimate of this distribution is obtainable from the Ministry of Labour and National Service. These figures are based partly upon data provided by the local insurance offices of the Ministry of Pensions and National Insurance ~~Service~~, and partly upon the returns made to the Ministry of Labour itself, by those industrial establishments employing more than 5 work people. This latter return is made annually in June, and declares the numbers of employees' insurance cards held by the occupiers of these establishments. The summated and analysed data is published annually for the month of June of each year. No specified reference date in this month is stated as, presumably, the collection of the figures takes place on different days during this monthly period.

The other source of this data, the local insurance offices of the Ministry of Pensions and National Insurance ~~Service~~ produces, ~~the~~ an annual statement, which is based upon the exchange of one quarter of the total number of insurance cards, at each local office, at the beginning of the June quarter each year. These latter figures and the figures collected from the employers, mentioned above, are assembled within the "statistical-area groupings", already referred to in the first chapter, when the choice of the Survey boundaries was considered. As far as possible an attempt is made, when compiling these final figures, to transfer people whose home address is in a different area to their place of work, into that area in which they are employed. Thus ~~the~~ figures are representative, as closely as possible, of the total numbers, actually employed by all industrial establishments in each sub-areas. Finally these "statistical groupings" of employment exchanges are combined to produce the four subdivisions of the Survey area - North Tyne East, North Tyne West, South Tyne East and South Tyne West. (2)

Those included in this, the "insured population", are all people paying Industrial injuries contributions. These include married women, who whilst they do not have to contribute compulsorily to the general National Insurance scheme, are compelled to pay, whilst engaged, this Industrial Injuries contribution. Thus a large potential error, by the omission of uninsured married women, is avoided. The returns, however, do not include civil servants.[1] As these are nearly all included under Orders XIX and XXI this omission does not affect the portion of industry being considered by this survey. A smaller number of civil servants also work in Orders VI and XV, but their representation on Tyneside, in the industries of these orders, is so small that it can be ignored.[1]

The estimated insured population working in industry on Tyneside at June 1955 is the population which will now be considered further. The figures for June 1955 were the latest ones available at the time the Industrial Census was done, and thus they are used in preference to more recently available material. The position is somewhat complicated by the fact that two sets of these estimates, for this month, are obtainable. One comes from the central Ministry of Labour, and presents only the total population engaged in each industrial Order.[2] The second set of figures comes from the local Regional Office of the same Ministry and is broken down by code numbers within each order, and it allows a more detailed investigation within the Orders to be made.[1] This latter data also separates the sexes, and the figures given are presented by 4 separate sub-areas of the Survey Area. There is a discrepancy, however, between the totals given by each of these two different sets of information. The central Ministry totals are a minute fraction lower than those obtained locally. This is accounted for by the fact that "transfers-out" of the area were only possible at the Central Office, whereas the local figures have been adjusted in this manner purely within the survey boundaries.[1] Thus, in the local figures, no allowance has been made for people who work outside the Survey Area, and yet live within it, and these latter are included in the totals.

A. <u>Distribution of Total Work Force Within the Industrial Orders (See Appendix No. 9).</u>

Some 381,300 people approximately were insured and at work on Tyneside in June 1955. This is roughly 1.5% pf the total insured population of Great Britain. The absolute figures for the insured population on Tyneside and Great Britain are shown by Industrial Orders on Table 41. The proportion of this population working within each order is given on Table 42. There are ~~of the total population~~ 165,378 or 43.4 % of the total insured population, working within the Survey Orders, i.e. Orders III to XVI - those which are

Table No.41. **Numbers of Insured Persons in Districts and Sub-Regions in Major Employment Groups, June, 1955.** (2)

| Employment Group. (Industrial Order ) | Tyneside. | Total For Great Britain. |
|---|---|---|
| 1. Agriculture. | 2,110. | 732,000. |
| 2. Mining and Quarrying. | 30,714. | 870,000. |
| 3. Treatment of Non-Metalliferous Mining Products. | 5,382. | 351,000. |
| 4. Chemical and Allied Trades. | 9,022. | 521,000. |
| 5. Metal Manufacture. | 4,909. | 574,000. |
| 6. Shipbuilding, Engineering and Electrical Goods. | 86,676. | 2,118,000. |
| 7. Vehicles. | 7,259. | 1,218,000. |
| 8. Other Metal Goods. | 5,781. | 519,000. |
| 9. Precision Instruments. | 763. | 148,000. |
| 10. Textiles. | 2,689. | 1,031,000. |
| 11. Leather, Leather Goods, and Fur. | 1,330. | 74,000. |
| 12. Clothing. | 9,668. | 673,000. |
| 13. Food, drink and Tobacco. | 15,338. | 906,000. |
| 14. Manufacture of Wood and Cork. | 6,649. | 309,000. |
| 15. Paper and Printing. | 6,515. | 560,000. |
| 16. Other Manufacturing Industries. | 3,397. | 289,000. |
| 17. Building and Constructing. | 24,556. | 1,409,000. |
| 18. Gas, water and electricity. | 7,571. | 386,000. |
| 19. Transport and Communications. | 30,258. | 1,711,000. |
| 20. Distributive Trades. | 46,092. | 2,400,000. |
| 21. Insurance, Banking and Commerce. | 6,638. | 477,000. |
| 22. National and Local Government. | 16,468. | 1,334,000. |
| 23. Professional Services. | 26,887. | 1,660,000. |
| 24. Miscellaneous (including ex-Service). | 24,616. | 1,654,000. |
| TOTAL. | 381,288. | 21,924,000. |

Table No. 42.

Percentage Distribution of Insured Persons in Tyneside and Great Britain among Major Employment Groups, June, 1955.

| Employment Group. | Tyneside. | Great Britain. |
|---|---|---|
| 1. Agriculture, Forestry & Fishing. | 0.6 | 3.3. |
| 2. Mining and Quarrying. | 8.1 | 4.0. |
| 3. Treatment of Non-Metalliferous Mining Products. | 1.4 | 1.6 |
| 4. Chemicals and Allied Trades. | 2.4 | 2.4 |
| 5. Metal Manufacture. | 1.3 | 2.7 |
| 6. Shipbuilding, Engineering, and Electrical Goods. | 22.7 | 9.7 |
| 7. Vehicles | 1.9 | 5.6 |
| 8. Other Metal Goods. | 1.5 | 2.4 |
| 9. Precision Instruments. | 0.2 | 0.7 |
| 10. Textiles. | 0.7 | 4.5 |
| 11. Leather, Leathergoods and Fur | 0.3 | 0.3 |
| 12. Clothing | 2.5 | 3.0 |
| 13. Food, Drink and Tobacco. | 4.0. | 4.1 |
| 14. Manufacture of Wood and Cork. | 1.7 | 1.4 |
| 15. Paper and Printing. | 1.7 | 2.6 |
| 16. Other Manufacturing Industries. | 0.9 | 1.3 |
| 17. Building and Contracting. | 6.4 | 6.4 |
| 18. Gas, Water, and Electricity. | 2.0. | 1.8 |
| 19. Transport and Communications. | 7.9 | 7.8 |
| 20. Distributive Trades. | 12.9 | 10.9 |
| 21. Insurance, Banking and Commerce. | 1.7 | 2.2 |
| 22. National and Local Government | 4.3 | 6.1 |
| 23. Professional Services. | 7.1 | 7.6 |
| 24. Miscellaneous (Including ex-Service). | 6.5 | 7.6 |
| Total. | 99.9 | 100.0 |

covered by this Survey; these will be called, henceforth, the "Survey Population". A group of 86,676 insured persons or 22.7% of the total insured population works in Order VI (i.e. shipbuilding, and engineering, and in the production of electrical goods). Some 15,338 (4%) are engaged in Order XIII or the food, drink and tobacco trades; 9,668 (2.5%) in the clothing industry (Order XII), and 9,022 (2.4%) in the chemical and allied trades (Order IV). These four orders are the largest grouping of industries employing the Survey Population.

There is a larger proportion of the insured population engaged in industries which lie outside the Survey Group of Industries. Thus the distribution trades (Order XX) employ 46,092 (12.1%); mining and quarrying (Order II) employ 30,714 (8.1%) transport and communications (Order XIX) employ 30,258 (7.9%); professional services (Order XXIII) employ 26,877 (7.1%); building and contracting (Order XVII) 24,556 (6.4%); and national and local government (Order XXII) employs 16,468 (4.3%). ~~The comparison between insured population as a whole within these industrial orders, and the similar population of Great Britin is shown by histogram on page~~ . This illustrates how more heavily dependent is Tyneside upon the shipbuilding, and heavy engineering industries, and what a small proportion of insured people are working in the production of vehicles, textiles, and other metal manufactures.

In relation to the whole of the North-East Region, the place of Tyneside industry, in terms of numbers of people employed, is shown in Table 43. Tyneside employs some 35.4% of the insured workers in this Region. It has less than the [redacted] average number employed in mining, metal manufacture, vehicles, textiles and agriculture, but it has more than average numbers engaged in shipbuilding, engineering, other metal goods, insurance, banking and commerce, distribution and transport, and professional services and other manufacturing industries.

B. Distribution of Survey Population within the Survey Sub-Areas.

The figures used as the Survey Population in this section are those obtained from the local Regional Office of the Ministry of Labour and National Insurance [redacted]. As already stated, this source produces the estimated insured population figures by four main sub-divisions of the Survey Area. Detailed attention will only be given to that section of the insured population which works within all the factories included in Orders III - XVI inclusive, i.e. the Survey Industries, i.e. the population group called the "Survey Population".

No. 43.

TABLE ~~XXIX~~ - NORTH EAST REGION.

Percentage Distribution of Insured Persons in Major Employment Groups among Districts and Sub-Regions, June, 1955.

(2)

| Employment Group. | Tyne-side. | *Total: North Development Area. | + Grand Total North East Region. |
|---|---|---|---|
| 1. Agriculture, Forestry and Fishing. | 7.8. | 37.4. | 100.0. |
| 2. Mining and Quarrying. | 18.3. | 95.5. | 100.0. |
| 3. Treatment of Non-Metalliferous Mining Products. | 33.4. | 94.7. | 100.0. |
| 4. Chemicals and Allied Trades. | 20.0. | 96.2. | 100.0. |
| 5. Metal Manufacture. | 9.5. | 99.2. | 100.0. |
| 6. Shipbuilding, Engineering and Electrical Goods. | 56.3. | 99.0. | 100.0. |
| 7. Vehicles. | 27.6. | 87.9. | 100.0. |
| 8. Other Metal Goods. | 43.8. | 97.2. | 100.0. |
| 9. Precision Instruments. | 72.6. | 95.1. | 100.0. |
| 10. Textiles. | 24.6. | 94.7. | 100.0. |
| 11. Leather, Leather goods and Fur. | 64.5. | 94.8. | 100.0. |
| 12. Clothing. | 37.1. | 96.3. | 100.0. |
| 13. Food, Drink and Tobacco. | 46.4. | 90.0. | 100.0. |
| 14. Manufacture of Wood and Cork. | 49.8. | 92.8. | 100.0. |
| 15. Paper and Printing. | 57.7. | 94.1. | 100.0. |
| 16. Other Manufacturing Industries. | 53.5. | 94.8. | 100.0. |
| 17. Building and Contracting. | 34.4. | 87.0. | 100.0. |
| 18. Gas, Water, and Electricity. | 43.5. | 91.6. | 100.0. |
| 19. Transport and Communications. | 41.8. | 90.6. | 100.0. |
| 20. Distributive Trades. | 43.1. | 90.0. | 100.0. |
| 21. Insurance, Banking, and Commerce. | 51.9. | 89.2. | 100.0. |
| 22. National and Local Government. | 36.4. | 81.9. | 100.0. |
| 23. Professional Services. | 37.7. | 86.2. | 100.0. |
| 24. Miscellaneous (Including Ex-Service). | 33.4. | 78.2. | 100.0. |
| Total. | 35.4. | 90.4. | 100.0. |

Of the 385,440 insured people working in ALL industries on Tyneside, 166,450 of those are employed by the Survey Industries. The distribution between the 4 sub-areas and within the survey group of industries is shown in table 44.

Of the Survey Population of 166,450, roughly equal proportions, 23.1% and 20.0%, work in the South Tyne East and the South Tyne West sub-areas respectively. The North Tyne East sub-areas gives employment to only 17.1% of the Survey Population, whereas Newcastle, in effect North Tyne West, employs 39.6% of the survey population.

86,700, or 52.1% of the Survey Population are employed in industries classed within Order VI; the second largest group, 15,560 people (9.3%), are employed in the food, drink, and tobacco industries (Order XIII). The remaining industrial orders all employ under 6% of the survey population, ranging from chemical and allied industries (Order IV) employing 9,800 (5.9%), and clothing (Order XII) employing 9,690 (5.8%), down to leather goods employing only 1,320 (0.8%), and precision instruments 760 (0.5%). (Table 44, columns m. and n.).

Within the 4 sub-areas the distribution of the population between the various Survey Industries varies more widely still. In South Tyne East, 71.7% of the 33,530 people working within the Survey Industries, work in Order VI. The next most important industry - clothing - employs only 2,100 or 6.3% of the Survey Population. Metal manufacture (Order V) comes next in importance, with 1,950 people (5.8%) of this population. In all other industrial activity this sub-area is proportionately under-represented as compared with the Valley as a whole. It is within this area, of course, that the towns of Hebburn and Jarrow, and South Shields lie. Their dependence upon the basic triad of industries, which are all included in Order VI, is still, obviously, very great. The presence, in the South East sub-area, of the small Bede Trading Estate, has begun to broaden the pattern of industry there, and the great dependence upon shipbuilding and engineering of this locality is beginning to end.

A more balanced situation exists in the South Tyne West sub-area. This fortunate state of affairs can, for the most part, be quite properly attributed to the existence there of the large Team Valley Trading Estate.(3) This estate, first opened in 1936, by 1953 gave employment in Survey Industries to over 12,000 of the Survey Population, of 38,440. The presence of this estate, together with the almost total absence of shipbuilding in the South-West, results in only 14,460 or 37.6% of the total survey population of this sub-area being employed in Order VI industries. Some

Insured Population

## Summary of Industries in the four Areas of Tyneside

Table No. 44.

| Industry | North Tyne West | | | North Tyne East | | | South Tyne West | | | South Tyne East | | | TOTAL | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Order No. | Persons (a) | % of Order (b) | % * within Area (c) | Persons (d) | % of Order (e) | % * within Area (f) | Persons (g) | % of Order (h) | % * within Area (i) | Persons (j) | % of Order (k) | % * within Area (l) | Persons (m) | % Order of tot. (n) | % within Area |
| III | 1930 | 35.4 | 2.9 | 890 | 16.3 | 3.1 | 2280 | 41.8 | 5.9 | 350 | 6.4 | 1.0 | 5450 | 3.3 | |
| IV | 4890 | 49.9 | 7.4 | 250 | 2.6 | 0.8 | 3810 | 38.9 | 9.9 | 850 | 8.7 | 2.5 | 9800 | 5.9 | |
| V | 770 | 15.7 | 1.2 | 480 | 9.8 | 1.7 | 1730 | 35.2 | 4.5 | 1930 | 39.3 | 5.8 | 4910 | 2.9 | |
| VI | 31120 | 35.8 | 47.2 | 17090 | 19.7 | 60.0 | 14460 | 16.7 | 37.6 | 24030 | 27.7 | 71.7 | 86700 | 52.1 | |
| VII | 4980 | 68.4 | 7.5 | 430 | 5.9 | 1.5 | 1320 | 18.1 | 3.4 | 550 | 7.6 | 1.6 | 7280 | 4.4 | |
| VIII | 2640 | 45.8 | 4.0 | 880 | 15.3 | 3.1 | 1960 | 34.0 | 5.1 | 290 | 5.0 | 0.9 | 5770 | 3.5 | |
| IX | 550 | 72.4 | 0.8 | 100 | 13.2 | 0.4 | 90 | 11.8 | 0.2 | 20 | 2.6 | 0.1 | 760 | 0.5 | |
| X | 470 | 17.6 | 0.7 | 1140 | 42.7 | 4.0 | 670 | 25.1 | 1.7 | 390 | 14.6 | 1.2 | 2670 | 1.6 | |
| XI | 1140 | 86.4 | 1.7 | - | - | - | 150 | 11.4 | 0.4 | 30 | 2.3 | 0.1 | 1320 | 0.8 | |
| XII | 2630 | 27.1 | 4.0 | 890 | 9.2 | 3.1 | 4070 | 42.0 | 10.6 | 2100 | 21.7 | 6.3 | 9690 | 5.8 | |
| XIII | 8120 | 52.2 | 12.3 | 2380 | 15.3 | 8.4 | 3150 | 20.2 | 8.2 | 1910 | 12.3 | 5.7 | 15560 | 9.3 | |
| XIV | 2230 | 33.6 | 3.4 | 2100 | 31.7 | 7.4 | 1850 | 27.9 | 4.8 | 450 | 6.8 | 1.3 | 6630 | 4.0 | |
| XV | 3500 | 53.7 | 5.3 | 300 | 4.6 | 1.1 | 2240 | 34.4 | 5.8 | 480 | 7.4 | 1.4 | 6520 | 3.9 | |
| XVI | 1020 | 30.1 | 1.5 | 1560 | 46.0 | 5.5 | 660 | 19.5 | 1.7 | 150 | 4.4 | 0.4 | 3390 | 2.0 | |
| Tot. orders III - XVI | 65990 | 39.6 | 99.9 | 28490 | 17.1 | 100.1 | 38440 | 23.1 | 99.8 | 33530 | 20.1 | 100.0 | 166450 | 100.0 | |
| Orders I - XXIV | 183980 | 47.7 | | 57060 | 14.8 | | 77250 | 20.0 | | 67150 | 17.4 | | 385440 | | |

* % of Orders III to XVI.

10.6% of the total are employed in clothing; 9.9% in the chemical and allied trades; 5.1% in "other metal goods" (Order VIII) i.e. in the lighter and mass-production type of engineering; 5.9% in Order III, i.e. non-metalliferous mining products; 5.8% in paper and printing (Order XV). Order VI employs a much lower than average proportion of people in this sub-area, whilst most of the other Orders employ a higher average.

In the northern half of the area, the concentration of industry around and within the city of Newcastle biases the employment position grossly, in favour of the North-West sub-area. In this sub-area some 31,120 people work in Order VI industries which is equivalent to 47.2% of the total of 65,990. Some 3,000 of this fraction are employed by shipbuilding firms, and another 7,500 work in two large establishments of a single large engineering concern. Another large electrical engineering factory employs 5,000 people. The larger than average proportion of people are employed in Order VII (vehicles) 7.5%; food, drink and tobacco 12.3%; chemicals and allied trades 7.4%; paper and printing 5.3%. Nevertheless, the picture is less diversified in the North-West than in the South-West. The main differences between Newcastle and the other sub-areas are not, however, shown in this analysis, as the Survey Industries do not include the distributive, transport, building and other industries, etc., i.e. Orders XVII to XXIV. These are over-represented in the City of Newcastle. As a result a smaller proportion, of the total insured population, is covered by the Survey in the North-West than in the other sub-areas (see Table 44A on the following page). The differences between the totals of insured population for the four sub-areas, is accounted for by the preponderance in the North-West of the much larger numbers employed in five main non-Survey Orders (See Table on the following page).

The North Tyne East sub-area, with its concentration of shipbuilding and repairing along the riverside, resembles the South East in its dependence upon the basic industries. Some 60%, or 17,090 of the total of 28,490 of the Survey Population, work in Order VI industries. A third Trading Estate is located in the north east sub-area. It is smaller than the Team Valley Estate, but larger than the Bede Estate in the South-East. It makes the largest contribution to the Survey Population within Orders XVI, i.e. plastic-goods manufacture, which employs some 1,560 people; Order XIV - furniture manufacture which employs some 1,200 people, out of 2,100 employed by the whole of the Order, and Order X - clothing employing some 800 people, out of 890 engaged in the whole of the Order. Order XIII employing 2,380 people (8.4% of the total of 28,490) in the

Table No. 44.A.

Population of Principal Industrial Orders excluded from Survey by Sub-Areas.

| Order. | Description. | North West | North East | South West | South East. | Total |
|---|---|---|---|---|---|---|
| XVII | Building. | 13,610 | 2,990 | 4,670 | 3,520 | 24,790 |
| XIX | Transport. | 15,620 | 3,900 | 5,060 | 5,850 | 30,430 |
| XX | Distributive Trades. | 28,780 | 5,430 | 6,270 | 5,910 | 46,390 |
| XXII | National and Local Government. | 9,870 | 1,820 | 2,740 | 2,130 | 16,560 |
| XXIII | Professional | 16,270 | 2,830 | 3,790 | 4,440 | 27,330 |
| TOTAL OF ALL ORDERS. | | 183,980 | 57,060 | 77,250 | 67,150 | 385,440 |
| TOTAL FOR SURVEY ORDERS. | | 65,990 | 28,490 | 38,440 | 33,530 | 166,450 |

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| XXIII | Professional | 16,270 | 2,830 | 3,790 | 4,440 | 27,330 |
| TOTAL OF ALL ORDERS. | | 183,980 | 57,060 | 77,250 | 67,150 | 385,440 |
| TOTAL FOR SURVEY ORDERS. | | 65,990 | 28,490 | 38,440 | 33,530 | 166,450 |

Food manufacturing industry - mostly in the curing of herrings and the canning of fruit, meat, vegetables. Another 2,100 (7.1% of the total) are employed in Sawmilling and the manufacture of boxes and crates (Order XV) as well as furniture making.

There is present, in this sub-area, a discrepancy between the data of the Board of Trade's industrial classification, and the figures provided by the Ministry of Labour for the classification of the insured population within industries. Some 1,100 people inthe North-East work in one establishment which is included by the Ministry of Labour in Order X - textiles, whilst in the classification supplied by the Board of Trade this factory is classed under Code number 262 - Order VIII (Metal Goods - not elsewhere specified). This is probably explained by the fact that this firm makes both wire ropes (Order VIII), and hemp ropes (Order X), and the classification given by the Board of Trade is more recent (April, 1956), than that given by the Ministry of Labour (June, 1955). The emphasis of production in this factory has recently altered in favour of the wire products. This discrepancy indicates that there may be similar mis-classifications between these two types of data, but these, if any, can be confidently said to apply only to the smaller firms. The majority of the large and medium-sized establishments in the Survey Area have been personally visited, and this is the only establishment where this contradiction between these two sets of data has been observed.

C. Distribution of Survey Workforce within Survey Industries - ALL sub-areas.

86,700 or 52.1% of the Survey Population of 166,450 are employed within industries grouped in Order VI, i.e. within the shipbuilding, engineering and electrical industries (Table 44). The next largest group 15,560 or 9.3% are employed in the Food, Drink and Tobacco Industries (Order XIII). The remaining orders all employ under 6% of the work-force, i.e. Chemical and Allied Trades (Order IV) employ 9,800 (5.9%); Clothing (Order XII) 9,690 (5.8%), and the range continues down to Leather Goods (Order XI) employing 1,320 (0.8%) and Precision Instruments (Order IX) 760 (0.5%) of the Survey Population.

The breakdown of each industrial order by geographic sub-areas is next considered. 35.8% of the 86,700 employed in Order VI establishments work in the North Tyne West sub-area. The dominating influence of four large shipbuilding and engineering establishments in this sub-area together employing 12,500 people has been noted.

In South Tyne East, 27.7% of those working in Order VI are employed. The concentration of shipbuilding, and in particular shiprepairing, in this sub-area accounts for much of this fraction. There is a steady trend away from this dependence. The small Trading Estate between Jarrow and South Shields is, as noted, helping towards the diversification in the towns of Jarrow and Hebburn; old munition factories have been converted to peaceful uses. Whilst much of the present work still lies within the engineering field, a wider range of lighter products is being produced. Today, it is probably true to say, that these two towns do not depend upon shipbuilding and repairing so much as does Wallsend on the opposite bank of the Tyne.

Some 19.7% of the 86,700 people working in Order VI are employed in the North Tyne East. Again, like the South East the majority of these are employed in marine engineering, shipbuilding, or shiprepairing establishments. There are 75 such establishments employing about 11,000 people out of the total of 17,090 employed within this Order.

A small number, 14,460 or some 16.7% of the total employed by Order VI work in South Tyne West. There is only one large engineering unit employing 4,200 here, and the rest of the population work in some 23 medium-sized factories (100-1,000 employees) and some 27 small-sized firms (under 100 employees). 18 of these 50 firms are on the Team Valley Trading Estate.

In Order XIII (the production of Food, Drink and Tobacco) the pre-eminence of North Tyne West, in effect the City of Newcastle, is more marked. Some 52.2% of the 15,560 people employed in this Order, work in this sub-area. Even when the fact that Newcastle has a larger population to feed than have the other towns, is taken into account, its position is still a disproportionate one. South Tyne West follows a long way behind, with only 20.2% of this industry's workforce. South Tyne East is, considering the size of its population, strangely under-represented in this type of industry. In fact, were it not for the presence of a single large biscuit making concern, employing 800 people, in South Shields, the discrepancy would be more marked. The nearness of Sunderland may partially explain this absence of the food and drink industries, as the concerns supplying food to that city, and located there, may well supply much of the manufactured food and drink to the towns of the South East.

When Order IV (Chemical and Allied industries) is considered, almost half of its work-force of 9,800 is seen to be concentrated in the North West sub-area. There are no single units of the larger size involved in this pattern, but there is a relatively large proportion of medium-sized plants. This is a reflection of the productive method of the type of industry included in this group, particularly in paint, soap, and pharmaceutical manufacture. A large volume of valuable product can be manufactured by the highly automated plant of these industries, by a relatively small work-force. Thus, for example, the paint industry, which is prominently represented in the North West and South West calculates that only 5% of the cost of its final product represents the cost of the labour used to produce it. (4) The concerns producing soap and detergents obtain much of their basic raw material from elsewhere, and are merely concerned, on Tyneside, to complete the processing, or even merely to bottle it before despatch. This type of work, it will be seen, can be done in medium-sized plants using a lot of machinery but few work people.

Some 9,690 or 5.8% of the Survey Population are employed in clothing establishments (Order XII). Despite the numerically large number of establishments in Newcastle, referred to in Chapter 7, it is seen that some 42.0%, the largest proportion, of the work-force of this industry is concentrated in the South West. The influence of the Team Valley Trading Estate is reflected once more by this situation. The method of financing the construction of these factories together, with the large local reserve of female labour, traditionally associated with this industry, has attracted to this Estate some large branches of clothing firms centred in West Riding of Yorkshire. The 27.1% of this industry's labour force, located in the North West, works in that disproportionately large fraction of smaller establishments found in the centre of Newcastle. Over a half of the 2100 people working in Order XII establishments in the South East are employed in a single large unit, a subsidiary of a national mens' clothing concern. Despite the presence of a Trading Estate in the North East, clothing employs relatively few people in this sub-division.

Of the remaining Industrial Orders the following outstanding points are worthy of consideration, although there is no necessity to go into further detail about each separate Order.

In the South East are located many of the saw-milling establishments of the area, but only 6.8% of the 6,630 people employed in Order XIV (Wood Manufactures) work in this sub-area. The high proportion of establishments here is due to the Tyne Dock's importing facilities. The other factories in this Order are mostly manufacturing, i.e. furniture, furnishings, and box making. There are none of these establishments in the South East, and the remaining work-force employed in this Order, is equally divided between the other three sub-areas. A somewhat similar position exists in Order XV (Paper and Printing). Only a fractional percentage of those working in this Order are located in the North East and South East. The bulk of the work-force of these industries is employed in Newcastle and Gateshead. Much of the printing etc (No. 623) is done in the smallest sized establishments in Newcastle. Again a similar pattern is seen when the numbers employed in Order III (Non metalliferous Mining products) is considered. The South East and the North East are badly under-represented in this. A distinctly different localisation of the work-force occurs in Order V (Metal Manufacture). Some three-quarters of the 4,910 people engaged in this Order work in South Bank establishments. The familiar pattern of the predominance in the North West and South West is seen again in Order VIII (Other Metal goods). The bulk (68.4%) of the 7,280 people engaged in the manufacture and repair of motor vehicles (Order VII) work in the North West. An unfamiliar predominance of the North East sub-area occurs in Order XVI (Other manufacturing industries), where some 46.0% of the 3,390 employed by it work. This is almost entirely due to the situation on the Trading Estate in this area of a single large factory employing 1,100 people, and making laminated plastic sheeting in a modern continuous process plant. A similar reason, a single large factory, account for the pre-eminance of the same sub-area in Order X(Textiles). This is the rope making establishment referred to previously. Nearly all those in Order XI(Leather and leather goods), work in Newcastle, where a complex of small and medium-sized firms are engaged upon the full range of leather working, from tanning and dressing, to the finishing of manufactured articles, such as handbags, and suitcases. This peculiar localisation, as mentioned, would seem to be due to the concentration in Newcastle of the main stock-market for the conurbation, together with several adjoining slaughter-houses.

The relationship between the numerical distribution, geographic and industrial, of establishments, and the similar distribution of the people which they employ, will be made the subject of further discussion in Chapter 10.

D. <u>The Age and Sex Distribution of the Working Population of Tyneside.</u>

It was impossible to obtain, directly, the age-distribution of either the total insured population of Tyneside, or the Survey Population. The only available figures were for the age and sex distribution of the whole insured population of the Northern Region of the Ministry of Labour.(1) This is shown on Table 48. Under the age of 25 years there are, approximately, equal proportions of both sexes in the insured population. There-after, there is a sharp fall in this proportion to under one-third as many women as men

TABLE No.4B.

Estimated Numbers of Employees in the
Northern Region at end May, 1955

(thousands)

| Age Group | Males | Females | Total |
|---|---|---|---|
| Under 18 | 50 | 49 | 99 |
| 18-19 | 30 | 35 | 65 |
| 20-24 | 78 | 63 | 141 |
| 25-29 | 101 | 36 | 137 |
| 30-34 | 108 | 31 | 139 |
| 35-39 | 96 | 28 | 124 |
| 40-44 | 100 | 32 | 132 |
| 45-49 | 95 | 34 | 129 |
| 50-54 | 85 | 28 | 113 |
| 55-59 | 70 | 20 | 90 |
| 60-64 | 51 | 9 | 60 |
| 65 and over | 26 | 5 | 31 |
| Total | 890 | 370 | 1260 |

employed in the 25-29 years age group, and to a slightly smaller proportion in the 30-34 years age group. After this age, there is a proportion of over one-third insured women to insured men, until the age of 49 years is reached. Over 50 years of age, there is a steady fall in the proportion of women insured for employment.

About half the total insured females in the Northern Region are under 30 years of age. The similar proportion of the insured males are, however, in the 25-44 years age range. This reflects the pattern noted in the first paragraph. Women seem to stop work when the child-bearing years are reached.

Over all ages, there are only two fifths as many women at work as there are men, within the Northern Region. On Tyneside, there is in the total insured population, only 122,160 women employed out of a total of 385,440 people (Appendix Table 9). This is a much lower proportion than for the whole Northern Region. Whether this local lower number of women at work is spread over the whole range of age groups, or is confined to a selected few age groups, it is difficult to say, as there are no figures available on this point for Tyneside alone. It would seem that the women of Tyneside do not return towork after their family has been reared, and/or they get married earlier and stop work at an earlier age. (Assuming that there are equal opportunities of employment for women locally) This is not strictly true (See Chapter 11). There is a stubborn local tradition that "a woman's place is in the home", and the average husband looks upon the fact of his wife working as a severe blow to his pride. The Tyneside man likes to be the sole provider for his family, and local prejudice is much against women working at any time, in their married lives. This would account in part for the situation. Secondly, of course, there is a relative shortage of the type of industry which is traditonally associated with the employment of women. Finally there is the question of earlier marriages. The people of Tyneside actually marry at slightly later ages than do the people of England and Wales as a whole, and at appreciably later ages than do those who live within the other large conurbation, Western Yorkshire, that lies within the Northern Region. (5)

Within the Survey Industries there is an even lower proportion of women employed (Table 4AC), 44,480 out of a total of 166,450 or 26.7%. Within the four sub-areas the pattern shows some striking differences. The proportion of insured women to men is much higher in the South-West than in any other area ([redacted]). The North West and South East areas follow some way behind in this respect. The North-East employs the lowest proportion of women (25·3%).

This geographic pattern of the distribution of female labour-force can be explained by the nature of the distribution of industry. Thus the newer and lighter industries, which provide many jobs for women, are highly concentrated in the South-West on the big Team Valley Trading Estate. Shipbuilding and heavy engineering, which employ fewer women, have a high concentration in the North East, and there are proportionately fewer jobs available for women in this sub-area. The other two areas are mid-way between these extremes. The North-West i.e. Newcastle, always has had a better balanced industrial structure, and could always provide jobs for women in industries such as clothing, food, drink manufacture, and, more recently, chemicals. In the South-East the pattern of industrial diversity has been until recently much the same as in the North-East. Today the smaller Bede Trading Estate there now offers jobs for women in a wide range of light industries, and there has been an expansion within the last decade in the clothing and food and drink industries.

The distribution of the male and female Survey Population within the Orders of the Survey Industries, is shown on Table 4D. The largest absolute employers of women are Order VI, Order XII (Clothing), Order XIII (Food, Drink and Tobacco), Order XV (Paper and Printing). The pattern changes, however, when the proportionate employment of women workers is considered. Only Order XII employs more women than men and there are roughly six women to each man here. Roughly equal numbers of the two sexes are employed in Orders XII and XV. Thereafter the proportion of women employed falls from one-half of the total of men employed in Order IV to only one seventh of the men employed in Order VI.

The patterns in those Orders which employ under 2,000 women is somewhat similar. Order X employs twice as many women as men. Order XI employs equal numbers of the sexes, and thereafter in the remaining Orders the proportion of women rapidly falls away. Order VII employs the lowest proportion of women in all the Survey Industries.

Because of the limitations of the data it has not been possible to state whether different factory size groupings employ significantly different proportions of women.

## Summary.

The picture of the distribution of the Survey Population throughout the various industrial orders reflects roughly the distribution within the size groups of industrial establishments throughout the same orders. The undue dependence of certain

Table 46.

No's. of Male and Female Surrey Population by geographic Sub-Areas.

SUB AREAS

| Insured Population. | North-West. | North-East. | South-West. | South-East. | Total. |
|---|---|---|---|---|---|
| MALE. | 48,210. | 22,730. | 25,660. | 25,370. | 121,970. |
| FEMALE. | 17,780. | 5,760. | 12,780. | 8,160. | 44,480. |
| TOTAL. | 65,990. | 28,490. | 38,440. | 33,530. | 166,450. |

Table 4D. MALE & FEMALE SURVEY POPULATION & INDUSTRIAL ORDERS

| ORDER. | No. of insured males. | No. of insured females. | Total Survey Population. |
|---|---|---|---|
| 111 | 4,150 | 1,300 | 5,450. |
| 1V | 6,040 | 3,760 | 9,800. |
| V | 4,350 | 560 | 4,910. |
| V1 | 75,180 | 11,520 | 86,700. |
| V11 | 6,470 | 810 | 7,200. |
| V111 | 4,130 | 1,640 | 5,770. |
| 1X | 540 | 220 | 760. |
| X | 970 | 1,700 | 2,670. |
| X1 | 620 | 700 | 1,320. |
| X11 | 1,410 | 8,280 | 9,690. |
| X111 | 7,850 | 7,710 | 15,560. |
| X1V | 4,750 | 1,880 | 6,630. |
| XV | 3,330 | 3,190 | 6,520. |
| XV1 | 2,180 | 1,210 | 3,390. |
| Total | 121,970 | 44,480 | 166,450. |

sub-areas upon industries in Order VI is brought out by the analysis of the distribution of the working population by the establishment which employ them. The influence of the "new" industries upon the distribution of the Survey Population is most clearly demonstrated in the South-West sub-area. Many of these new concerns are engaged upon the lighter forms of engineering, both skilled precision work such as automatic machinery, and small electrical motors, and semi-skilled mass production work such as electronic and radio components. A large proportion of these industries are included within the large number of establishmentsin Order VI, and their exact bearing upon the industrial situation is only shown when the more detailed tables of industry, and population, in the Appendix are examined.

Finally, a large proportion of the working population is not covered by the scope of the survey, particularly in the North-West sub-area. The planning of an Industrial Health Service for the population of the non-manufacturing establishments presents a more difficult problem than that posed by the manufacturing establishments. For this and many other reasons, this large sector of the working population is excluded from present considerations. The fact that a large number of this excluded population works in Newcastle, means that the gap in the information is particularly great for this sub-area. This affects considerably any planning, founded on the present data, of an Industrial Health Service for this sub-area.

## References - Chapter 9.

1. Regional Controller. Ministry of Labour and National Service (1956). Personal communication.

2. The North East Development Association(1956). "The Northern Region", Newcastle -upon-Tyne.

3. North East Trading Estates Ltd.(1953) "Industrial Estates". London.

4. Adamson J.W. (1956). Personal Communication.

5. Census 1951. England & Wales. Report on Greater London and five other Conurbations page cxxx H.M.S.O. London.

## Chapter 10.

## Distribution of Survey Population within Survey Factories.

The distribution of the Survey Population within the Survey Industries has been considered, as has the distribution of Survey Factories within size groupings for these industries. A survey of the distribution of ALL factories within the Survey Industries by their size is given on Table 45, column (d). For comparison sake the similar distribution for the two local Factory Inspectorate areas is given on the same table. The latter information was provided by the Factory Inspectorate. The survey industries data had to be extracted from the Registers. It shows that the pattern of distribution in the larger inspectorate area, is closely similar to that expected in the smaller survey area. Thus 70.2% of the 2,875 Tyneside Factories are estimated in the 1-10 employees size-group. Of the remaining 30% of factories, i.e. the Survey Factories, within the definition used by the Factory Inspectorate, a further 19.3% employ 50 or under people, and there-after there is a rapid falling off in the proportion within each classified size grouping.

A "Factory" is defined for the purposes of Factory Inspector by Section 151 of the Factory Act 1937, this definition is expounded in Part XIV - "Interpretation and General".

"151. -(1) Subject to the provisions of this section, the expression "factory" means any premises in which, or within the close or curtilage or precincts of which, persons are employed in manual labour inany process for, or incidental to, any of the following purposes, namely:-

a) the making of any article or of part of any article; or
b) the altering, repairing, ornamenting, finishing, cleaning or washing, or the breaking up or demolition of any article; or
c) the adapting for sale of any article;

being premises in which, or within the close or curtilage or precincts of which, the work is carried on by way of trade, or for purposes of gain, and to, or over which, the employer of the persons employed therein has the right of access or control."

The remainder of this section further amplifies this definition. Many of these establishments are, of course, not within the generally accepted

Table No. 45. "Factory Act" Population within factory size-groups (Survey Industries Only ).

| Size Group | Factories in Gateshead & Newcastle Factory Inspectors' Districts. | | | | | Factories in Nuffield Tyneside Survey Industries. | | | |
|---|---|---|---|---|---|---|---|---|---|
| | No. Factories (a) | | No. workers (b) | | Av. workers per factory (c) | No. Factories (d) | | No. workers * (e) | |
| | Group | % tot. | Group | % tot. | | Group | % tot. | Group | % tot. |
| 1 - 10 | 3730 | 70.0 | 12641 | 5.9 | 3.39 | 2019 | 70.2 | 6842 | 5.2 |
| 11 - 50 | 1061 | 19.9 | 25200 | 11.8 | 23.75 | 554 | 19.3 | 13158 | 9.9 |
| 51 - 100 | 225 | 4.2 | 16014 | 7.5 | 71.17 | 95 | 3.3 | 6761 | 5.1 |
| 100 - 250 | 154 | 2.9 | 25932 | 12.1 | 168.39 | 103 | 3.6 | 17344 | 13.1 |
| 251 - 500 | 90 | 1.7 | 32263 | 15.1 | 358.48 | 58 | 2.0 | 20792 | 15.7 |
| 501 - 1000 | 41 | 0.8 | 29735 | 13.9 | 725.24 | 27 | 0.9 | 19582 | 14.8 |
| 1001 - 2000 | 18 | 0.3 | 23102 | 10.8 | 1283.44 | 9 | 0.3 | 11551 | 8.7 |
| 2001 - 5000 | 10 | 0.2 | 30000 | 14.0 | 3000.00 | 8 | 0.3 | 24000 | 18.1 |
| 5001+ | 3 | 0.1 | 19000 | 8.9 | 6333.33 | 2 | 0.1 | 12667 | 9.5 |
| Total | 5332 | 100.1 | 213887 | 100.0 | | 2875 | 100.0 | 132697 | 100.1 |

* - estimated

definition of a factory, (or manufactory), as "a place where articles are produced by labour especially on a large scale" (Shorter Oxford Dictionary).

The total of Survey Population working within each factory size-group had first to be ascertained, in order to discover what proportion of them actually were employed within the Survey Factories (i.e. those employing over 10 people). This presented some considerable difficulty.

The limitations of the figures obtained for the population of each Survey Factory as stated in the Factory Register have been discussed in Chapter 7. The figures for the insured population of the area are more accurate, but do not define within each Industrial Order the size-grouping of the establishments which employ this population. The information collected by the Ministry of Labour, from the annual insurance returns, about the population of these Survey Factories, was confidential and could not be disclosed. Through the kindness of the Factory Inspectorate it was possible to obtain the total factory population by factory size-groupings of the Survey Industries, for the two local Inspectorate districts, but not for the specific Survey Area alone. (Table 45, columns a) and b). Nevertheless such population figures only relate, as already noted, to that part of the work-force of these establishments that was considered to be exposed to statutory hazards and processes, and not to the total insured population of that factory. This difficulty about the accuracy of the figures was in part overcome, as the Factory Department had itself recently carried out a more accurate census (Table 45, column b) of the total number of people exposed to statutory hazards within these industries. It, however, unfortunately presented the information by size-groupings, which are not the same groups used in other Factory Department statistical publications. It was difficult to obtain the criteria upon which this census had been carried out, and so it was difficult to assess just how much more accurate these figures were than those provided by the Factory Register. Nevertheless, this was the only data available about the number of people engaged in different size-groupings of the industrial establishments of the Survey Industries. By arithmetical means, the estimated number of workers employed in each size-grouping of the Survey Factories was obtained, and the figures are presented in column (e) Table 45.

This calculation brings out a highly important point essential to the design of any Industrial Health Service. Whilst 70% of the manufacturing establishments on Tyneside employ 10 people or less, these 2,000 odd factories employ just over 5% of the total work-force of the whole area which is exposed to statutory hazards. Thus if the focus of any Industrial Health Service is to be the individual worker at work, and not his place of work per se, the exclusion of this administratively complex and bulky group of small factories would result in only some 5% of the survey population being excluded from such a Service. (It is assumed that the proportion of workers not exposed to statutory hazards is constant throughout the whole range of the Survey Industries. This is probably an unjustified assumption, but under the circumstances it must be made).

The extreme complexity of providing an Industrial Health Service for the very small factory has been much discussed in the past.[1][2][3] Such discussions, it is now suggested, have been preoccupied with the huge number of these establishments, and have tended to ignore the fact that they employ only a marginal fraction of the total working population. It is further submitted that the wide statutory definition of "factory" has tended to produce an artificial inflation of the total number of "factories", in the sense that this latter work is commonly understood. These two factors have obscured this essentially simple position. It is not disputed that the environmental supervision of these small factories is itself an important matter. If, however, it is accepted that the focus of any Industrial Health Service should be the supervision of the health of the individual at work, and that the control of his working environment is merely the means to this end, then it seems obvious, that until such time as further work has been done upon the organisation of a very-small-factory Health Service, this size-group of factories can with safety be ignored.

There is a qualification to the above stated principle that must be made, in the light of the accuracy and nature of the data upon which it is based. The figures used in this deduction relate only to those persons exposed to statutory hazards and processes. Thus, for example, the office and managerial staff are excluded. Some estimate had, therefore, to be made of what proportions of these latter types of employees were not covered by the Factories Act, in order to estimate the validity of the principle stated above. It was obvious that some industries, because of the nature of their processes, employed a higher proportion of non-productive staff than others. For example there are many people not exposed to hazardous processes in the production of food, and drink, whilst there is much larger proportions so exposed in shipbuilding. In general, the sales and distribution staffs of factories in the mass-production industries are greater than in the heavy and craft industries. The census of factory populations compiled by the Factory Inspectorate allowed an estimate to be made of the number of employees in each Survey Factory size-group, by using the average number calculated to work in each factory in the group. No estimate was available of this "Factory Act Population" by industries although the insured population by industries was available. It was this former data that was needed, if a comparison was to be made between the two differing factory populations, and the validity of the above principle demonstrated.

The Survey census of Tyneside establishments allowed the total number of the "Factory Act Population" employed in each Industrial Order to be estimated, using the average "Factory Act Population" of each factory (Table 45 column c). The deduced totals so arrived at for each Order were then compared with the known insured population for the Order. The result is shown in the final column of Table 46 and is somewhat surprising. The proportions shown between the two types of population estimates for Orders V and VIII are obviously false. There cannot be more "Factory" Act" people employed in an industry than there are insured people working in it, as all employees, apart from those working on "their own account", are included in the Ministry of Pensions and National Insurance figures. This artefact can be partially explained by the practice, of some large firms with headquarters outside the area, of centralising the handling of all their insurance work in such a headquarters. For purposes of the Ministry return, these employees are shown in the locally obtained figures as working in some distant place, although the Inspectorate figures include them within local industry. Thus one of the populations is artificially lowered. Another explanation for the obvious falsity of some of these proportions, is the different classification of some establishments used by the two separate bodies compiling them. There are two sources of error here. The Board of Trade classification of establishments as used for the Survey, as has been seen in one instance already, does not always coincide with the Ministry of Labour's classification (see page 87 ). There are, however, reasons to think that any discrepancies between these two classifications are mostly small ones.

The comparison between the gross totals of the "Factory Act Population", and the Survey Population, shows that, overall, about four-fifths of the Survey Population of the Survey Industries is covered by the Factory Inspectorates' activities. On the basis of the data available it is unsafe to go further than this and state what the proportions of these two types of population are within different Industrial Orders.

Table No. 46

# Nuffield Tyneside Survey. Factories by Size and Industry.

| | Size Groups (Factory Act Persons) | | | | | | | | | | | (a) | (b) | (c) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1* - 10 | 11 - 50 | 51 - 100 | 101 - 250 | 251 - 500 | 501 - 1000 | 1001 - 2000 | 2001 - 5000 | 5001 + | TOT 11+ | TOT* all sizes | TOTAL* Factory Act Persons | TOTAL Insured Persons | Factory Act Persons as % of Insured Persons |
| Av. No. per Factory | 3.39 | 23.75 | 71.17 | 168.39 | 358.48 | 725.24 | 1283 | 3000 | 6333 | | | | | |
| Order III | 98 | 27 | 3 | 7 | 3 | 2 | | | | 42 | 140 | 4892 | 5450 | 89.8 |
| IV | 105 | 28 | 6 | 7 | 2 | 2 | | | | 45 | 150 | 4793 | 9800 | 48.9 |
| V | 75 | 15 | 3 | 6 | 5 | 3 | | | | 32 | 107 | 5802 | 4910 | 118.2 |
| VI | 386 | 78 | 11 | 24 | 29 | 9 | 5 | 8 | 2 | 166 | 552 | 67992 | 86700 | 78.4 |
| VII | 154 | 53 | 6 | 5 | | 1 | 1 | | | 66 | 220 | 5059 | 7280 | 69.5 |
| VIII | 177 | 57 | 9 | 6 | 1 | 2 | 1 | | | 76 | 253 | 6697 | 5770 | 116.1 |
| IX | 33 | 12 | 2 | | | | | | | 14 | 47 | 540 | 760 | 71.1 |
| X | 19 | 3 | 3 | | 2 | | | | | 8 | 27 | 1065 | 2670 | 39.9 |
| XI | 23 | 8 | | 2 | | | | | | 10 | 33 | 605 | 1320 | 45.8 |
| XII | 161 | 32 | 14 | 16 | 2 | 3 | 1 | | | 68 | 229 | 9172 | 9690 | 94.7 |
| XIII | 323 | 106 | 12 | 10 | 8 | 3 | | | | 139 | 462 | 11194 | 15560 | 71.9 |
| XIV | 189 | 59 | 11 | 8 | 2 | 1 | | | | 81 | 270 | 5614 | 6630 | 84.7 |
| XV | 211 | 57 | 11 | 10 | 2 | 1 | | | | 81 | 292 | 5979 | 6520 | 91.7 |
| XVI | 65 | 19 | 4 | 2 | 2 | | 1 | | | 28 | 93 | 3293 | 3390 | 97.1 |
| | 2019 | 554 | 95 | 103 | 58 | 27 | 9 | 8 | 2 | 856 | 2875 | | | |
| Tot. F.A. Persons * | 6844 | 13158 | 6761 | 17344 | 20792 | 19581 | 11551 | 24000 | 12667 | | | 132697 | 166450 | 79.7 |

* = Estimated

There is not sufficient data about the insured population available, to allow the same type of comparison to be made within the factory size-groupings. The inability to demonstrate any worthwhile relationships between the two types of population within the Industrial Orders, does not allow an indirect approach to be made to this classification of the above principle. Thus, the validity of the principle that only 5% of the Working Population is ignored by excluding those factories employing under 11 people, still remains strictly in doubt. It will continue to be assumed, however, for planning purposes, that the proportion of four-fifths between the "Factory Act" and the Survey Populations, applies to all industries and all size groups of establishments. The Census of Industry was re-compiled in the light of this deduction. Each factory population was increased by one-fifth, in order that true deductions could be made about the adequacy of the existing Industrial Health Services (Chapter 13).

## References - Chapter 10.


1. Report of a Committee of Enquiry on Industrial Health Services (1951) Cmd.-8170. H.M.S.O. London.

2. Report of the Royal College of Physicians on Social and Preventive Medicine (1945) London.

3. British Medical Association (1949). Report on Occupational Health Services (Brit.Med.J. 1 290.Supplement).

## Chapter 11.

### Employment Trends on Tyneside. (1)

The detailed examination of the localisation of the working population of Tyneside, both geographically and within types of industries, has been given in Chapter 9 and 10. At present the purpose is to examine the present employment position and, if possible, future employment prospects of the area. The latter subject is of considerable importance to the planning of an Industrial Health Service. Should severe economic depression return to the valley in the near future, the chances of developing a voluntary comprehensive Industrial Health Service would be very poor. The present climate of opinion amongst local industrial management about such a service, is not favourable. A voluntary Service would therefore, be one of the first expenditures to be cut during a period of retrenchment.

The introduction of the National Insurance Scheme in 1948 has made comparison of absolute employment figures for the last 20 years difficult. For the seven years since the introduction of the scheme, it will be seen that the total number of insured people in the Survey Area has remained constant about 380,000 (Table 46A). A better estimate of the trend of employment is obtained from the index figures (Table 46B), which make a proportionate allowance for the change in definition of the insured population which occured in 1948. It will be seen that whilst there has been a steady tendency for the national index of employed persons to rise, there has been a steady but slighter increase of employment on Tyneside (~~See graph~~ ). When this situation is investigated in greater detail, by the sex structure of the insured population, it is seen that whilst the index of employment for the male population has remained constant, with some minor fluctuations (Table 46C), the increase of the female insured population has, however, been less than for the country as a whole over the same period. This is surprising when it is considered that Tyneside has proportionately fewer females in its <u>insured</u> population than has Great Britain (Tables 46E and 46F). (2) It would appear that this position is mainly the result of there being fewer opportunities of employment available for women, in an area that depends to such a large degree upon heavy industry. (1)

### The Trend of Unemployment on Tyneside.

The unemployment position of the area is still unfavourable as compared with the country as a whole. The rate of unemployment still runs at the rate of 1.9% of all those registered insured people, as compared to 1.2% for Great Britain. As recently as 1954 the position was relatively much

Table No. 46A

## Changes in Total Insured Population, 1938-1955, ~~by Districts and Sub-Regions.~~ 1

(Tyneside and Great Britain)

| District and Sub-Region. | Numbers Insured. | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1938. | 1943. | 1946. | 1948A. | 1948A + B. | 1953. | 1955. |
| Tyneside. | 306,771. | 292,973. | 321,695. | 310,818. | 381,757. | 375,239. | 381,288. |
| Great Britain. | 14,994,480. | 14,630,000. | 15,200,000. | 15,760,000. | 20,270,000. | 20,880,000. | 21,460,000. |

The 'A + B' figures refer to the total number of persons insured under the National Insurance Act of July, 1948, and are comparable with statistics for later years.

Table No.46B

## Index of Changes in Total Insured Population and Percentage Distribution, 1938-1955, ~~by Sub-Regions and Districts.~~ 1

| District and Sub-Region. | Index of Numbers Insured (1938= 100)[1] | | | | |
|---|---|---|---|---|---|
| | 1943. | 1946. | 1948. | 1953. | 1955. |
| Tyneside. | 95.5. | 104.9. | 101.3. | 99.6. | 101.2. |
| Great Britain. | 97.6. | 101.4. | 105.1. | 108.3. | 111.3. |

1. Index numbers for the years 1948, 1953, and 1955 have been adjusted to allow for the exclusion of certain classes of workers from the Unemployment Insurance Scheme before July, 1948.

Table No.46C

**Index of Changes in Male Insured Population and Percentage Distribution 1938-1955** 1

(Tyneside and Great Britain)

~~By districts and sub-regions.~~

| District and Sub-Region. | Index of Numbers Insured (1938 = 100)[1] | | | | |
|---|---|---|---|---|---|
| | 1943. | 1946. | 1948. | 1953. | 1955. |
| Tyneside. | 79.4. | 93.6. | 93.9. | 91.5 | 92.8. |
| Great Britain. | 81.1. | 95.3. | 101.6. | 103.3. | 105.1. |

1. Index numbers for the years 1948,1953, and 1955 have been adjusted to allow for the exclusion of certain classes of workers from the Unemployment Insurance Scheme before July, 1948.

Table No. 46D

**INDEX OF CHANGES IN FEMALE INSURED POPULATION AND PERCENTAGE DISTRIBUTION, 1938-1955, ~~BY DISTRICTS AND SUB-REGIONS.~~** 1

(Tyneside and Great Britain)

| District and Sub-Region. | Index of Numbers Insured (1938 = 100)[1] | | | | |
|---|---|---|---|---|---|
| | 1943. | 1946. | 1948. | 1953. | 1955. |
| Tyneside. | 151.1. | 143.9. | 126.8. | 127.0. | 129.7. |
| GREAT BRITAIN. | 141.6. | 117.6. | 114.6. | 120.9. | 126.6. |

Table No. 46E

**Changes in Male Insured Population 1938-1955, ~~by Districts and Sub-Regions~~.** 1

(Tyneside and Great Britain)

| District and Sub-Region. | Numbers Insured. | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1938 | 1943. | 1946. | 1948A. | 1948A + B. | 1953. | 1955. |
| Tyneside. | 237,849. | 188,834. | 222,537. | 223,444. | 263,255. | 256,530. | 260,068. |
| Great Britain. | 10,913,690. | 8,850,000. | 10,400,000. | 11,085,000. | 13,485,000. | 13,720,000. | 13,960,000. |

The 'A + B' figures refer to the total number of persons insured under the National Insurance Act of July, 1948, and are comparable with statistics for later years.

Table No. 46F

**Changes in Female Insured Population, 1938-1955, ~~by Districts and Sub-Regions~~.** 1

(Tyneside and Great Britain)

| District and Sub Region. | Numbers insured. | | | | | | |
|---|---|---|---|---|---|---|---|
| | 1938. | 1943. | 1946. | 1948A. | 1948A + B. | 1953. | 1955. |
| Tyneside. | 68,922. | 104,139. | 99,158. | 87,374. | 118,502. | 118,709. | 121,220. |
| Great Britain. | 4,080,790. | 5,780,000. | 4,800,000. | 4,675,000. | 6,785,000. | 7,160,000. | 7,500,000. |

more unfavourable (Table 46G). Within recent years the rate of decline of the amount of local unemployment has been much faster than that of Great Britain (~~See graph~~ ). The unemployment rate for males is probably as low as can be obtained on Tyneside, with its high level of disablement-producing heavy industry, without a greater drive to prevent accidents and improve rehabilitation.[1] The static state of the total available male labour force means, therefore, that the average employer should be forced by circumstances to giving more attention to the preservation of the health and fitness of his existing labour force. These circumstances do not yet affect the female labour force, as there appears still to be a considerable untapped local reserve of female labour. The higher unemployment figures for women, and the relatively low local proportion of women in employment, suggest that a supply of women recruits to industry is still available.[1]

It seems that, whilst there continues to be adequate work demand for the products of the basic industries, unemployment on the Tyne has reached almost its lowest possible at the present day. Any expansion in the work-force of the area will depend upon the establishment of more of the type of industry that finds it possible to employ a large proportion of women. There will be a temporary increase in the number of people available for employment, when the effects of the increased birth rates of the post-war years is felt from the early 1960's onwards.

To forecast with any confidence the economic fortunes of Tyneside is impossible. The recent stormy economic history, and a continued but decreasing dependence upon a narrow range of industries, makes any objective prediction hazardous. The prospects for the shipbuilding industry are said to be set fair, and the industry itself is confident about its future.[3] Its industrial relations, however, are bad, and the attitudes towards them on both sides of the industry are anachronistic in the extreme.[4] This, together with increasing foreign competition, gives the outside observer a less happy feeling about the future of this staple industry.[3] Most other sections of the heavy engineering industry, on the other hand, would appear to have a more stable future. The new nuclear power industry has obtained a valuable and broad foundation amongst a wide range of Tyneside engineering factories. The newer lighter consumer goods industries are continuing to enter the area,[5] and their fortunes would seem to depend more upon the general economic health of the country as a whole, rather than upon local factors. The revolution in economic social thinking over the past two decades probably means that the national economic state will never again be allowed to

Table No. 46G

**Unemployment among Insured Persons, 1938 - July, 1956.** 1

(Tyneside and Great Britain)

| Year. | Unemployment Rate* | |
|---|---|---|
| | Tyneside. | Total in Great Britain |
| 1938. | 18.1. | |
| 1946. | 5.6. | 2.4. |
| 1947+ | 4.9. | 2.2. |
| 1948. | 3.9. | 1.8. |
| 1949. | 3.9. | 1.5. |
| 1950. | 4.3. | 1.5. |
| 1951. | 3.2. | 1.2. |
| 1952. | 3.4. | 2.0. |
| 1953. | 3.1. | 1.6. |
| 1954. | 2.9. | 1.3. |
| 1955. | 2.3. | 1.1. |
| Jan-July,1956. | 1.9. | 1.2. |

* Average number of insured persons registered as unemployed expressed as a percentage of the insured population.

\+ Excluding February, because of the Fuel Crisis detailed figures for this month are not available.

deteriorate as badly as in the 30's, without early and vigorous curative measures. By and large, apart from shipbuilding, it is felt that Tyneside will never again be allowed to become a Depressed Area, in the sense that it will fall far below the economic standards prevailing throughout the rest of the country. Beyond this the economic prospects for the area, and thus for the proposed Industrial Health Service, cannot be foreseen.

## References - Chapter 11.

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2. Central Statistical Office(1956)Annual Digest of Statistics. London.
3. Shipbuilding Supplement (1956). The Economist. June 2nd. Vol. CLXXIX No.5884.
4. Leading Article (1957). Manchester Guardian, May 28th.
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## Chapter 12.

### The Medical, Nursing and Full Time First Aid Personnel engaged in Tyneside Industry.

When the census of local industrial establishments had been completed, it became possible to enquire further, from these concerns, about the type of Industrial Health Service, if any, which they provided for their employees.

### Sources and Validity of Information.

In order to ease the collection of data, and to avoid misunderstanding about the purposes of the investigation, Industrial Associations of various types were first approached for their co-operation. Reactions were varied. The largest general Association could not co-operate, as the terms of its Royal Charter did not allow it to do so, the other main Association of manufacturers expressed considerable interest but did not proffer any active assistance. Of the individual Trade Associations approached, a very few gave grudging assistance after very searching enquiries about the aims and motives of the survey. The remainder either did not reply to the approaches, or turned down the request for co-operation. The furthering of this part of the investigation depended, to a considerable extent, upon gaining the co-operation of that large section of local industry engaged upon engineering and shipbuilding. Fortunately the Engineering Employers Confederation, after certain hesitations, agreed to a limited degree of co-operation. Unfortunately the Shipbuilding Employers refused to do so without, so far as is known, attempting to obtain further information about the aims of the proposed investigation.

As a result of this lukewarm reception on the part of the employers representatives, it was decided to collect information from each establishment separately. No attempt would be made to use the medium of any Trade Associations, other than those that had already made offers of assistance. This method of approach, as will be seen, resulted in a remarkable degree of helpful co-operation. It can only be concluded that an attitude of suspicion and mistrust is more liable to be aroused in representative bodies, than in individuals, by this type of investigation.

A similar approach to local representatives of the Medical Profession was only a little more encouraging. Of the four local branches of the British Medical Association, whose co-operation was sought, only one acknowledged the receipt of the communication and advised its members about the activities of the Survey. Another replied, but did not do so until an interval of nine months had passed.

So far as is known the other two branches took no action in the matter. This lack of response was all the more surprising, in the light of a recent policy statement about the formation of any future Industrial Health Service.[1] This attaches great importance to the place of the general practitioner in such a service. Furthermore, it will be seen that the majority of Doctors professionally engaged in local industry are general practitioners. In this situation it is all the more perplexing, that the local branches of the major medical association showed such little interest in the matter.

The Secretary of the local branch of the Association of Industrial Medical Officers proved most co-operative, and it was partly due to his valuable help that this aspect of the Survey has proved to be as accurate as seems possible in the circumstances.

~~The help of the local faculty of the College of General Practitioners was sought for another different phase of the work. This is considered in Chapter~~ .

There is unfortunately no suitable representative body of Occupational Health Nurses in the area. Whilst there is an active local branch of their professional association, it was found that nearly all of its members are employed by the Nationalised Industries, particularly coal-mining. These are excluded from the Survey, and for the purposes of this investigation it was considered that the association could offer little assistance.

In November 1955 (i.e. before this work began) the Factory Inspectorate throughout the country had circularised all industrial establishments employing 50 or more persons, in almost the identical group of Industries to that being considered by this Survey.[2] This questionnaire asked for details about the medical and nursing staff employed. It would, of course, have furthered the work of the present investigation immensely if the local results of this postal enquiry could have been obtained. This unfortunately proved not to be possible. Whilst such information as had been collected was made freely available, there proved to be considerable limitations upon its validity. Only one of the two local Inspectorate districts had transcribed accurate abstracts of all the returned questionnaires, before these were forwarded to London for analysis. Thus the picture for one half of the Survey Area was incomplete. Most serious, however, was the complete lack of information about that proportion of questionnaires that had not been returned. Such information as was available was used, as far as was possible, to check the results of the separate, but similar, enquiry conducted later by this Survey.

Whilst detailed information about the degree of positive response to this early postal enquiry by the Factory Inspectorate was not available, there was a strong subjective impression amongst the local Inspectorate that it had been poor. (2) This fact, together with the reluctance of the Trade Associations to co-operate, did not auger well for the sucess of any similar future enquiry that may be conducted by this Survey. Nevertheless, in any attempt to improve upon this response, it would have proved impossible, with the resources available, to personally visit each of the 856 Survey Factories. It was therefore decided to delay another postal survey of all these establishments for a period of twelve months from November 1955, in the hope that in the intervening period more co-operation could be gained. In the meantime, detailed attention was given to those concerns which were known, from other sources, to have in existence some form of Health Service.

In an attempt to anticipate yet another poor response to this second postal survey, other alternative sources of information were sought in the interim. It was discovered that one of the local wholesale drug houses specialised in supplying the industrial firms of Tyneside with requisites for their Health Services. One of their representatives dealt exclusively with this side of their business. When approached, he proved willing to help in the collection of information about whether the Survey Factories he visited employed either a doctor or a nurse. Whilst the statistical validity of such information would be highly suspect it was hoped, that over a period of time, it would be possible to built up a less hazy outline of the situation, than that existing at the beginning of the Survey. At the worst such information would be valueless, and at the best, it would give no more than a pointer to be followed, with more reliable methods, at a later date.

In December 1956, a postal questionnaire, somewhat more simplified than that used by the Factory Department, was circularised to all the 856 Survey Factories. The response was far better than had ever been anticipated as seen when table 47 is compared with Table 40, ~~page~~ .

Out of the total of 856 questionnaires sent 92(10·7%) were not returned. All the firms employing over 1,000 people answered. Only 2 (2·4%) of those employing between 251 and 1,000 people did not reply. One of these was the main daily newspaper for the area employing nearly a thousand workers, and the other, a much smaller concern, employing under 300 people, and engaged upon the

Table 47.

Postal Questionnaires not returned.

Distribution by Orders and Factory Size Groups.

| Industrial Order. | Factory Size Group (No. of employees). 11-50 | 51-100 | 101-250 | 251-500 | 501-1000. | Total. |
|---|---|---|---|---|---|---|
| III | 2 | 1 | 1 | | | 4 |
| IV | 4 | | | | | 4 |
| V | 1 | 1 | 1 | | | 3 |
| VI | 12 | 3 | 2 | | | 17 |
| VII | 11 | | | | | 11 |
| VIII | 2 | | | 1 | | 3 |
| IX | 0 | 1 | | | | 1 |
| X | 1 | | | | | 1 |
| XI | 0 | | | | | 0 |
| XII | 4 | | 3 | | | 7 |
| XIII | 17 | 2 | 1 | | | 20 |
| XIV | 6 | 2 | 1 | | | 9 |
| XV | 5 | 3 | 1 | | 1 | 10 |
| XVI | 1 | 1 | | | | 2 |
| Total | 66 | 14 | 10 | 1 | 1 | 92 |

production of brass castings. The 24 (12·1%) firms who did not reply in the size ranges 51-250 are spread over a wide range of nearly all the Survey Industries and do not call for any further comment. Of the smallest firms, i.e. 11-50 employees, some 66 (11·9%) failed to answer the questionnaire. This is roughly the same proportion as in all the ~~other~~ size groups. It was anticipated that a larger proportion of these smallest establishments, all of which would probably need to return completely negative questionnaires, would have failed to reply. The degree of response from this size group was very gratifying. The failure within Industrial Orders to return the questionnaire showed some variation. In Order XIII, 20 Food, Drink and Tobacco producing establishments out of 139 failed to reply. This being the highest proportion of all the Orders. The other large, and much the most important Order - No. VI, showed under 10% of no replies which is near the overall average. The 10 other Orders call for no comment.

In summary the response to this investigation was far better than was originally anticipated. Despite the lukewarmness of the recommendation of the Trade Associations, the management of the large majority of the establishments were sufficiently interested in the purpose of this investigation to reply. From the other sources of information mentioned, and from personal contact over a period of time, with a broad range of local industry, it has been possible to verify the accuracy of most ~~and~~ of the positive information about numbers of personnel given in these returns. As will be seen, all those establishments which stated that they employed either a Medical Officer or a trained nurse have been visited. Many of the remaining establishments in the larger size-group have also been visited for other purposes, from time to time. There is no doubt that the positive information about the type and numbers of personnel given by these returns was accurate at the time the questionnaires were completed. Whilst the attention given to those establishments, of all size groups, which returned negative questionnaires, has been less intense, there is similar confidence that the information provided by them is reasonably accurate. The information gained from the survey of local general practice (Chapter 14 ), did not reveal any practitioner who was not already known to be working in industry. It is admitted that there may be some undiscovered doctors so employed in the non-sample section of this latter investigation.

Definitions of various groups of Medical and Nursing Personnel working in Industry.

A. Industrial Medical Officers (I.M.O.'s).

Those:-

i. Engaged exclusively in industry.

Within this group are included those doctors who are working for one, or more industrial concerns, to the exclusion of any form of medical practice.

ii. Engaged in industry upon a part-time basis.

This large group contains all those doctors who work in industry for a fraction of their time, and yet who are also engaged upon some other form of medical activity, for the whole or part of the remainder of their working time. This group is capable of further sub-division.

a) General Practitoners (G.P.'s).

The majority of doctors who spend a part of their professional time, on a regular sessional basis, working in industry are, for the most of their time working in general practice.

b) Other Part-Time Medical Officers. (Part-Time on a sessional basis).

There is an occasional doctor working in Tyneside industry who is not principally a general practioner. Thus there is a married woman doctor who attends infant-welfare clinics and pension tribunals, as well as holding an industrial appointment. The local police pathologist also has a part time appointment with a tobacco firm.

c) Doctors on Emergency call.

It was soon discovered that some firms who insisted that they employed a Medical Officer part-time, did not receive from him any regular sessional services. When this point was pursued it appeared that the doctor, usually a local general practioner, received an annual retaining fee, and in return undertook to attend, at any time, that industrial establishment, should his services be required by them. This arrangement was taken, in most cases, to refer only to the emergency treatment of persons injured in accidents or suddenly taken ill. These practitoners were obviously providing a different type of service to those attending on a regular, sessional basis, and they had to be treated separately.

B. Nursing Personnel.

The main difficulty met with, in compiling a census of nurses working in industry, was the ignorance, actual or feigned, of employers, about standards of nursing training. There was a surprising lack of knowledge, amongst many firms about the professional differences between a State Registered Nurse (S.R.N.), a State Enrolled Assistant Nurse (S.E.A.N.), and "Other Nurses". This last group proved to be an extremely heterogeneous body of people. They ranged from the girl who had completed her training and who had failed, for a wide range of reasons to obtain her diploma: through the enthusiastic woman who had spent much time, particularly during the last war, in practical First-Aid nursing: to the person who had simply been given a white overall to wear and some cursory First-Aid instruction, had been designated "Nurse".

It was suspected in several instances that the employer was fully aware that the person claiming to be a trained nurse had not benefited by any formal nursing training; when questioned about this he usually found it politic to feign ignorance of the true position. It must be remembered, in this connection, that the wages paid to an untrained person are less, although not substantially so, than those demanded by S.R.N.'s and S.E.A.N.'s.

When a white coat is worn by the auxiliaries, it is difficult for the average person attending a works surgery to discriminate between the various grades of nursing skill. It tends to be assumed that the "Nurses" position is controlled by some legal sanction, and that this is a sufficient guarantee of the quality of the service given. This, of course, is not so. The Factories Acts 1936 and 1948 require no more than that she "be a responsible person who shall, in the case of a factory where more than fifty persons are employed, be <u>trained in first aid treatment</u>" (Section 45 (3) Factories Act 1937).
There is no definition of the words underlined, and no statutory standards have been prescribed. Whilst a few employers cynically play upon this confusion, to save the difference in wages demanded by these two types of nurses, many employers of this recalcitrant type quite openly state that they have no intention of exceeding the minimum standards. On the other hand, some employers realise that the higher quality of service being obtained from trained personnel is to their direct advantage, and specifically seek to employ qualified nurses.

Despite a multiplicity of attitudes towards the trained nurse at work in industry, an impression was gained of two predominant ones. Firstly, many, probably the majority, of people in authority in industry, particularly in smaller firms, do not clearly realise the difference, in professional training and ability, between the trained and the untrained person. Secondly, when engaging a "nurse" too often is little attention given to the type of training she has received. Almost anyone who is called "nurse" can be engaged by such firms, without further consideration being given to their ability and training.

It is impossible to be more precise about the position of the untrained "nurse", as detailed attention was only given to that section of industry served by trained nurses, i.e. S.R.N.'s or S.E.A.N.'s. The other type of "nurse" was only directly encountered, when following up returns to questionnaires which proved to have been answered inaccurately, or where these people were working for a firm which also employed a doctor. (See Chapter 17 for further details.) It was almost impossible to differentiate, on any simple objective basis, between the untrained "nurse" of doubtful quality, and the more capable person, who whilst having no formal qualification, has a wealth of experience and a wide practical training. This latter type includes many full-time First-Aid attendants of both sexes.

Under these circumstances, nursing personnel was divided into three categories.

i). The State Registered Nurse (S.R.N.).

ii). The State Enrolled Assistant Nurse (S.E.A.N.), who is differentiated from the S.R.N. because of the restrictions placed by statute upon her activities. She cannot, for example, give injections if unsupervised, or have control of certain Dangerous Drugs.

iii). Other "nurses" or First-Aid auxiliaries. These include all those persons considered above who do not have any formal nursing qualification.

C. <u>Other Ancillary Personnel.</u>

Within this category are included all those persons whose primary duty is neither the provision of medical nor nursing attention. There are only a few people within it. A few examples will illustrate this; thus chiropodists, physiotherapists, radiographers are included, and dentists, for convenience of categorisation, are also included here.

Some of the above difficulties in obtaining accuracy of description of these types of personnel were encountered before the questionnaire was circulated. An attempt was made to eliminate them by appropriately phrasing the questions asked. To a large extent, this attempt was successful, but those establishments which gave doubtfully accurate returns were all visited, and the true position clarified. It was as a result of many of these visits that the range of managerial attitudes towards Nursing personnel was discovered.

Doctors working within Tyneside Industry. (Table 55).

There are 29 doctors working in industry on Tyneside. The establishments they cover are shown on Tables 54 and 55.

1. Full-Time Medical Officers.

There are only two doctors engaged in Industrial Health practice for the whole of their professional time. One is employed by a large heavy engineering-shipbuilding combine. He is responsible for the health of the workers in three separate establishments; two adjacent engineering works employing some 7,500 people, and a shipbuilding yard, some five miles to the east, which employs some 3,500 people. The second doctor is employed by two large associated companies, one working on the manufacture of turbo-alternating electricity generators, and the other producing electrical switchgear. The two factories for which he is responsible are on opposite banks of the Tyne some five miles downstream from Newcastle. Each of these places employs approximately 5,000 people.

2. Part-Time Medical Officers (a) General Practitioners. (Tables 48, 49, 50).

Twenty-two of the twenty-nine doctors working in Industry are primarily general practitioners, who devote a greater, or lesser, proportion of their time to this work. Fifteen of them are responsible for the health of a single establishment only, another six cover two factories, and one supervises no less than six different industrial plants. All of them, except one, are working within the National Health Service; this exception has a private-patient general practice in the residential town of Gosforth. Of the eight Appointed Factory Doctors within the Survey Area, six are in this category. The distribution of these doctors within industry (Table 54) shows, that those with multiple appointments have their charges scattered across a wide range of industrial work. Of the fifteen practitioners having charge of single factories, the distribution is shown on Table 48.

Table 48.

The Committments of G.P.'s caring for Single Industrial Establishments.

| Dr. No. | Type of Factory. | Order. | Number of employees approx. | Hours/week spent. | Size of own patient list. | Number of ~~doctors~~. partners | Average number on list. |
|---|---|---|---|---|---|---|---|
| 3. | Fused Silica Ware | III | 610 | 1 hour | 4,497 | 2 | 2,532 |
| 4. | Foundry Specialists | V | 150 | 3 hours | 3,460 | 0 | 3,460 |
| 5. | Lead Smelting | V | 200 | 1 hour | Unknown | 1 | - |
| 6. | Marine Engineering | VI | 3,300 | 2 hours | 3,461 | 0 | 3,461 |
| 7. | Pump Manufacture | VI | 290 | 5 hours | 1,942 | 1 | 1,663 |
| 8. | Ship Repairing. | VI | 1,000 | ½ hour | 3,769 | 1 | 1,885 |
| 9. | General Engineering | VI | 4,200 | 12 hours | Unknown | 0 | - |
| 10. | Shipbuilding | VI | 1,800 | 4 hours | 3,512 | 2 | 3,215 |
| 11. | " | VI | 1,800 | 1 hour | 2,031 | 0 | 2,031 |
| 12. | Wire Rope Manufacture | VIII | 1,250 | 2 hours | 4,035 | 3 | 2,268 |
| 13. | Metal Box Manufacture | VIII | 840 | 4 hours | 3,843 | 1 | 3,194 |
| 14. | Mens' clothing. | XII | 750 | 4 hours | 2,824 | 2 | 2,301 |
| 15. | Box Making | XV | 370 | 5 hours | 3,281 | 4 | 2,299 |
| 16. | Laminated Plastics | XVI | 1,100 | 4½ hours | 4,435 | 2 | 3,239 |
| 17. | Rubber Hose | XVI | 500 | 2 hours | 4,080 | 2 | 2,301 |
| | | | 17,160 | 51 hours | | | |

**Table No. 49. Committments for G.P. caring for two factories.**

| Dr. No. | Type of Factory. | Order. | No. of Employees. | Hours Spent/ week. | No. on own list. | No. ~~in practice~~ of partners. | Average No. on list. |
|---|---|---|---|---|---|---|---|
| 18. | Glass Works<br>Lamp Factory. | III.<br>VI. | 630)<br>600) 1,230 | 2)<br>1) 3 | 4,776 | 3 | 1,144. |
| 19. | Lead Works<br>Aero-Engine Starter | V.<br>VI. | 230)<br>350) 580 | 1) 3<br>2) | 1,908 | 0 | 1,908. |
| 20. | Glue Factory<br>Oil Seals | IV.<br>VIII | 220)<br>950) 1,170 | ½)<br>2) 2½ | 4,368 | 3 | 3,331. |
| 21. | Soap Works.<br>Medium Engineering. | IV.<br>VI. | 600)<br>900) 1,500 | 4)<br>2) 6 | 3,257 | 1 | 2,478 |
| 22. | Chemical Works<br>Ship repairing Yard. | IV.<br>VI. | 50)<br>3,000) 3,050 | 1)<br>5) 6 | 4,562 | 1 | 3,472 |
| 23. | Electric Battery Manufacture.<br>" " " | VI.<br>VI. | 290)<br>550) 840 | 1)<br>1) 2 | | (Unknown) | |

**Table No. 50. Committments for G.P. caring for six factories.**

| Dr. No. | Type of Factory. | Order. | No. of Employees. | Hours spent/ week. | No. on own list. | No. ~~in practice~~ of partners. | Average No. on list. |
|---|---|---|---|---|---|---|---|
| 24. | (Sealing Compound Manufacture.<br>(Baking Machinery.<br>(Electrical Insulators.<br>(Electrical Insulators.<br>(Tube Works<br>(Pharmaceutical Laboratory | IV<br>VI<br>VI<br>VI<br>V<br>IV | 110.<br>350.<br>375.<br>210.<br>270.<br>160. | 1 hour<br>½ hour<br>2 hours<br>2 hours<br>4 hours.<br>1 hour. | 3,009 | 1 | 2,856 |
| | | | 1,475 | 10½ hours. | | | |

Of the six doctors engaged in the shipbuilding and heavy engineering industries, three attend shipyards. One attends for half an hour per week for 1,000 people, and one for one hour per week for 1,800 people, and the third for four hours per week for 1,800 people. A fourth attends the 3,300 people of a marine engineering works for two hours per week. Of the other two, one attends a large mixed engineering concern employing some 4,200 people for twelve hours per week, and the other looks after a small specialist engineering factory employing some 290 people, for five hours per week.

The single doctor employed in Order III attends his factory, which employs 600 people, for one hour per week. Of the two Order V firms employing Industrial Medical Officers, a lead smelting works employing over 200 peole, has its doctor attending for one hour per week, and a foundry equipment firm employing under 150 people, has attention for three hours per week. In Order VIII the doctor of the wire rope firm, which employs over 1,000 people, attends for two hours, and the doctor of the metal-box factory attends the 840 employees for four hours per week.

The clothing firm with 750 employees, mostly women, has the services of its doctor for four hours per week; the 500 employees of the rubber hose firm for two hours; the 370 people in the paper-box making firm for five hours, and 1,100 employees of the laminated plastics factory for four and a half hours per week.

The distribution of the work of the six general practitioners who look after two establishments each, is shown on Table 49. The data given in Tables 48, 49, and 50 about the number of patients cared for by each of these doctors will be further explained, when the structure of general practice as a whole is dealt with in Chapter 14 . The work of the single general practitioner who cares for the health of six establishments is detailed in Table 50.

When further attention is given to the work-load borne by these doctors, it will be seen that many of them, as well as caring for their domiciliary patients and these factories, have other regular professional commitments, such as Insurance Tribunals, National Service Medical Boards and so on. Some further examples of the range of these other commitments are given in the next paragraph. This considers the five remaining doctors working part-time in industry, but who do not have general practices to care for.

The establishment, its work-force, the number of hours spent per week, and the other commitments, of these doctors are stated in Table 51. It will be seen that one of these doctors is, in fact, a full-time Industrial Medical Officer whose

Table No. 51.

Part-Time I.M.O.'s not engaged in General Practice.

| No. of Doctor. | Type of Establishment. | Order. | No. of Employees. | Hours spent/ per week. | Other Committments. |
|---|---|---|---|---|---|
| 25. | (Shipbuilding Yard.<br>(Shiprepairing yard.<br>(Shipbuilding yard and Marine<br>( engineering Works. | VI<br>VI<br><br>VI | 5,000<br>2,000<br><br>2,000 | 3<br>3<br><br>3 | ) Nil. Retired from General<br>) Practice.<br>) |
| 26. | (Grey Iron Castings Foundry<br>(Steel Foundry<br>(Aero-Engine Repair Shop | V<br>V<br>VII | 900<br>400<br>80 | 6<br>3<br>3 | ) Retired from General Practice.<br>) Attends Medical Boards twice<br>) weekly. |
| 27. | (Pharmaceutical Factory.<br>(Tin Box Printing. | IV<br>XV | 900<br>120 | 5<br>1 | ) Married woman. Attends one Infant<br>) Welfare Clinic and one Pension<br>Tribunal weekly. |
| 28. | Steel Rolling Mill. | V | 600 | ½ | Full time I.M.O. centred elsewhere. |
| 29. | Tobacco Factory. | XIII | 1,000 | 6 | Police Pathologist. University Lecturer in Forensic Medicine. |
| | | | 13,000 | 33½ hours | |

Table 52.

Distribution of Medical Officers by Type and by number of establishments cared for.

| Number of establishments. | Full Time M.O. | Part Time Medical Office G.P. | Other Doctors |
|---|---|---|---|
| 1 | | 15. | 2. |
| 2 | 1. | 6. | 1. |
| 3 | 1* | | 2. |
| 4. | | | |
| 5. | | | |
| 6. | | 1. | |
| Total. | 2. | 22. | 5. |
| | | 29. | |

* See note table 69.

Table No. 53.

Time spent by M.O's in Factories.

| Number of Factories. | Number of Doctors. | Total hours spent per week. | Average time/week per-establishment. | Average time/week without the Full time I.M.O's. |
|---|---|---|---|---|
| 1. | 15 | 57 | 3 hrs. 48 mins. | |
| 2. | 9 | 72 | 4 hrs. 10 mins. | 2 hrs. 4 mins. |
| 3. | 3 | 62 | 5 hrs. 53 mins. | 3 hrs. 0 mins. |
| 4. | | | | |
| 5. | | | | |
| 6. | 1 | 10½ | | |
| Total. | 29. | 201½ | | |

i.e. 2 full time I.M.O's
22 General Pratitioners.
5 Other Doctors.

Table No. 54.

## M.O's Employed in Industry by Orders and Factory Size- Grouping.

Size-Grouping (No. of Employees)

| Industrial Order. | 51-100. | 100-250. | 251-500. | 501-1000. | 1001-2000. | 2001-5000. | 5000+. | Total. | TOTAL 'at risk' |
|---|---|---|---|---|---|---|---|---|---|
| III | | | | 2 | | | | 2 | 42 |
| IV | 1 | 3 | | 2 | | | | 6 | 45 |
| V | | 3 | 2 | 2 | | | | 7 | 32 |
| VI | | 1 | 6 | 3 | 5 | 7* | * 1 | 23 | 166 |
| VII | 1 | | | | | | | 1 | 66 |
| VIII | | | | 2 | 1 | | | 3 | 76 |
| IX | | | | | | | | | 14 |
| X | | | | | | | | | 8 |
| XI | | | | | | | | | 10 |
| XII | | | | 1 | | | | 1 | 68 |
| XIII | | | | 1 | | | | 1 | 139 |
| XIV | | | | | | | | | 81 |
| XV | | 1 | 1 | | | | | 2 | 81 |
| XVI | | | | 1 | 1 | | | 1 | 28 |
| TOTAL | 2 | 8 | 9 | 14 | 7 | 7* | 1 * | 48 | |
| Total No. of Factories 'at risk' | 95 | 103 | 58 | 27 | 9 | 9 | 1 | | 856 |

* See note on Table 69.

main charge, a steel works, lies outside the area. He has been arbitrarily included in this category. Doctor No. 27. is the only woman to be employed in industry on Tyneside. The two establishments she cares for are both owned by the same company, and just over half their combined work-force is women.

The facts set out in the preceding paragraphs will be further considered from two different points of view later. Firstly, from an industrial viewpoint in seeking to show to what extent the whole of local industry has the benefit of medical attention and advice. Secondly, to consider the relationship between the doctors' industrial commitments and his other professional commitments. Until then, further comment is deferred.

The Nursing and First Aid and Ancillary Personnel employed in Tyneside Industry.

a) Trained Nurses.

Only State Registered Nurses (S.R.N.'s) and State Enrolled Assistant Nurses (S.E.A.N.'s) are considered in this section. Other persons claiming to be "nurses" or described as such are included in the next section, which deals with First Aid personnel employed solely on these duties.

In all there are 93 State Registered, or State Enrolled, nurses employed in Tyneside industry. 56 of these are S.R.N.'s and 37 are S.E.A.N.'s. They, and the 75 First Aid personnel to be considered shortly, are employed in a total of 95 establishments, (See Table 66, [redacted] ). Only 33 of these establishments have either whole or part time Industrial Medical Officers who give professional support and supervision to these personnel. As a result, there are 25 of these nurses who are without any form of medical supervision whatsoever, (Table 60) (if the four factories who employ nurses and have a standing arrangement with a local general practioner for emergency call are excluded). Of these 25 unsupervised nurses, only two are jointly employed in the same establishment, one of these is an S.R.N. and the other is an S.E.A.N. In fact, the latter receives no supervision from the more adequately trained S.R.N., as this latter woman is only employed part-time, and is in fact subordinate to the S.E.A.N. The time given to these factories by the 33 supervising doctors comes to a total of 173½ hours per week. These 93 nurses devote a total of some 3,974½ hours per week to the care of the 54,220 employees. This total of nursing time is to be treated with some reserve. It is based upon replies to the questionnaires. The accuracy of the replies concerning the number and type of the trained nurses has been personally checked in all the establishments which employ them. Nevertheless some of the information collected was more difficult to check, and that relating to hours worked was the most difficult. Many nurses did not appear to know exactly how many hours per week they gave to their job. They tended in these circumstances to give the standard reply of 44 hours. It was suspected that a proportion of these were regularly working overtime, and thus their total working week may actually have been considerably longer. Some answers about working hours were given with precision. In such cases it was usually found that the policy of the company was to disallow the nurses to work overtime, or that there were several nurses working on a shift basis who were being relieved at set intervals. The senior nurse, in those places employing more than one nurse, and the nurse working without any assistance, tended to have to exceed their hours when special conditions or circumstances arose. For example, home visiting of sick work-people could often only be done after the factory had closed. Four of the S.R.N.'s are men, and they all work in heavy engineering or shipbuilding. The remaining 89 nurses are all women.

First Aid Personnel.

Included within this category are all the other personnel of the medical departments of Tyneside industry, who devote all their employed time to this work.

There are 79 of these people. The range of training and aptitudes is wide and varied and has been mentioned already. No attempt was made to assess the quality of the service they gave. This is one of the many problems cast up by the work that would well repay more detailed and lengthy study. Of these 79, 44 were women. It was usual to find more men employed in the heavy industries, particularly in shipbuilding. There is a supposed prejudice, according to managers, by the employees of these industries against the employment of women on these duties. Despite this, there are three female registered nurses working in two of the shipyards, without any apparent ill effects. There are no fewer than 49 of these full time auxiliaries in 34 establishments without any form of regular or emergency medical supervision. There are another five in four establishments who are supervised by and subordinate to a medically unsupervised S.R.N. These people work a total of 3,172 hours per week.

Ancillary Personnel.

This category of worker has already been defined on page 108 . There are 8 of them altogether, and they are listed below.

Physiotherapists .....1 (Full time).
Chiropodists ...........4(all on a sessional basis)

Opticians ...... 2 (On a sessional basis).
Dentists ....... 1 ( " "    "    " ).

The physiotherapist is employed by a large engineering combine, which has a fully equipped physiotherapy department, which it uses a great deal, and which it values highly. The chiropodists are all employed by firms which have a high percentage of women in their labour force. Thus the largest tobacco firm provides a regular sessional appointment, as does a similar sized clothing factory. The opticians are simply given facilities by their two companies (one the same group of engineering firms as employs the physiotherapist, and the other a medium-sized mining engineering firm) to carry out their N.H.S. prescribing and dispensing practice, within the company premises. They are not direct employees of the company. The same principle applies to the single dentist who practices in local industry. He is engaged full time in this work, and divides his time equally between the tobacco manufacturing firm and the mining engineering establishment both mentioned above. These two firms provide him with surgery premises in their medical departments together with a certain amount of equipment, over and above the permanent equipment, such as the chair and pedestal.

## References - Chapter 12.

1. Supplement (1957). Brit. Med. J. July 20th. (Report of Occupation Health Committee for 1956/57).

2. Noble, C.R., H.M. District Inspector of Factories (1956) Personal Communication.

TABLE 55 Distribution of Medical Officers throughout Industry

| No. of firms. | Description. | No. of employees. | Hrs/week. | Nursing Assist. | Full Time First Aid |
|---|---|---|---|---|---|
| | | **Order 111** | | | |
| 111.1. | Glass Manuf. | 630 | 2 | 1 SRN | - |
| 111.2. | Silica Wire Manuf. | 610 | 1 | - nil - | |
| Total | 2 factories | 1240 | 3 | 1 SRN | |
| | Total factories "at risk" = 42. Total population "at risk" = 5,450. | | | | |
| | | **Order 1V** | | | |
| 1V.1. | Soap Manuf. | 600 | 4 | 2 SRN | |
| 1V.2. | Pharmaceuticals. | 800 | 5 | SRN | |
| 1V.3. | Sealing Compound. | 110 | 1 | | |
| 1V.4. | Pharmaceuticals. | 160 | 1 | | |
| 1V.5. | Glue Manuf. | 220 | ½ | | |
| 1V.6. | Organic Chemicals. | 50 | 1 | | |
| Total | 6 factories | 1940 | 12½ | 3 SRNs | |
| | Total factories "at risk" = 45. Total population "at risk" = 9,800 | | | | |
| | | **Order V** | | | |
| V.1. | Grey Iron Castings. | 900 | 6 | 2 SEAN | |
| V.2. | Steel Castings. | 400 | 3 | SRN | |
| V.3. | Steel Rolling. | 600 | ½ | SEAN | |
| V.4. | Tube Drawing. | 270 | 4 | SRN | 2 |
| V.5. | Lead Smelting. | 200 | 1 | | |
| V.6. | Lead Processing. | 230 | 1 | | |
| V.7. | Foundry Products. | 150 | 3 | | |
| Total | 7 factories | 2750 | 18½ | 2 SRN, 3 SEAN | 2 |
| | | **Order V1** | | | |
| V1.1. | Ship Building & Rep. | 1800 | 1 | 1SRN, 1SEAN | |
| V1.2. | " " | 2000 | 4 | SRN | |
| V1.3. | " Repairing. | 3000 | 5 | SRN | |
| V1.4. | " Building. | 1800 | 4 | - | 3 |
| V1.5. | " " | 5000 | 3 | - | 3 |
| V1.6. | " " " | 2000 | 3 | - | 2 |
| V1.7. | Marine Engineering. | 2000 | 3 | - | 2 |
| V1.8. | Ship Repairs & End. | 3300 | 2 | | |
| V1.9. | Ship Repairs | 1000 | ½ | | |

Table 55. Continued...

| No.of firms. | Descripton. | No.of employees. | Hrs/week. | Nursing Assist. | Full Time First Aid. |
|---|---|---|---|---|---|
| V1.10. | ~~Diesel~~ "Mixed" Engineering. | 4200 | 12 | 3 SRN. | |
| V1.11. | Baking Machinery. | 350 | ½ | SRN. | |
| V1.12. | Engine Starters. | 350 | 2 | SRN. | |
| V1.13. | Battery Manuf. | 290 | 1 | SRN. | |
| V1.14. | " " | 550 | 1 | SRN. | |
| V1.15. | Electric Lamps. | 500 | 1 | SRN. | |
| V1.16. | Turbo-Generators. | 5000 | 20 | 4 SRN. | 2 |
| V1.17. | Electrical Equipment. | 5600 | 20 | 4 SRN. 2 SEAN. | 3 |
| V1.18. | Pumps. | 290 | 5 | SRN. | |
| V1.19. ) | Mixed | ( 5000 | 40 | 5 SRN | |
| V1.20. ) | Engineering. | ( 2500 | | 18 SEAN. | |
| V1.21. | Electrical Insulators. | 210 | 2 | | 3 |
| V1.22. | " " | 375 | 2 | SEAN. | 1 |
| V1.23. | Mining Machinery. | 900 | 2 | | 1 |
| Total | 23 factories | 46115 | 134 | 24 SRN<br>22 SEAN | 20 |

Total factories "at risk" = 166. Total employees "at risk"=86700

Order V11

| | | | | | |
|---|---|---|---|---|---|
| V11.1. | Engine Repairs. | 80 | 3 | | |

Total factories "at risk" = 66. Total population "at risk" = 7280..

Order V111

| | | | | | |
|---|---|---|---|---|---|
| V111.1. | Oil Seals. | 950 | 2 | SEAN | |
| V111.2. | Metal Boxes. | 840 | 4 | SRN | |
| V111.3. | Wire & Hemp Ropes. | 1250 | 2 | SRN | 1 |
| Total | 3 factories | 3040 | 8 | 2 SRN, 1 SEAN | 1 |

Total factories "at risk" = 76. Total employees "at risk" = 5770.

TABLE 55 Contd.

| No. of firm. | Description. | No. of Employees. | Hrs/week. | Nursing Assist. | First Aid Assist |
|---|---|---|---|---|---|
| | | Order X11 | | | |
| X11. 1. | Men's Tailoring. | 750 | 4 | S.R.N. | |
| | Total factories "at risk" = 68. Total employees "at risk" = 9690 | | | | |
| | | Order X111 | | | |
| X111. 1. | Tobacco Manuf. | 1000 | 6 | S.R.N. | 2 |
| | Total factories "at risk" = 139. Total employees "at risk" = 15,560. | | | | |
| | | Order XV | | | |
| XV.1. | Litho Printing of Metal Boxes. | 120 | 1 | SEAN | |
| XV.2. | Cardboard Cartons. | 370 | 5 | - Nil - | |
| | Total 2 factories | 490 | 6 | 1 SEAN | |
| | Total factories "at risk" = 81, Total employees "at risk" = 6520. | | | | |
| | | Order XV1 | | | |
| XV1. 1. | Laminated Plastics. | 1100 | $4\frac{1}{2}$ | 1 SRN , 2 SEAN. | |
| XV1. 2. | Rubber Hose Manuf. | 500 | 2 | SRN | |
| Total | 2 factories | 1600 | $6\frac{1}{2}$ | 2 SRN, 2 SEAN. | |
| | Total factories "at risk" = 28, Total employees "at risk" = 3390. | | | | |
| GRAND TOTAL | 48 factories | 60,705 | $201\frac{1}{2}$ | 36 S.R.N. 29. SEAN. | 25 First Aid Personnel. |

Total factories "at risk" = 856

Total employees "at risk" = 166, 450.

TABLE 56

## Distribution of Nurses and First Aid Staff throughout Tyneside Industry.

| No.of Firm. | No.employed. | Description. | Nurse SRN or SEAN. | Time/ week (Hrs) | Full Time First Aid Staff | Time/ week (hrs) | M.O. Employed. | Time/ week (hrs) |
|---|---|---|---|---|---|---|---|---|
| | | **Order 111** | | | | | | |
| 111.1. | 630 | Glass. Manufacture. | SRN | 44 | | | Yes. | 2 |
| | Total factories "at risk"=42. | | | Total employees "at risk"=5,450. | | | | |
| | | **Order 1V** | | | | | | |
| 1V.1. | 600 | Soap Manuf. | SRN | 39 | | | Yes. | 4 |
| 1V.2. | 800 | Pharmaceuticals. | SRN | 40 | | | Yes. | 5 |
| 1V.7. | 700 | Detergent Bottlers. | SRN | 44 | | | No. | |
| 1V.8. | 680 | Paint.Manuf. | | | 2 | 88 | | |
| Total | 2780 | 4 factories | 4 SRN | 135 | 2 | 88 | 2 | 9 |
| | Total factories "at risk"=45 | | | Total employees "at risk"=9800. | | | | |
| | | **Order V** | | | | | | |
| V.1. | 900 | Grey Iron Castings. | 2 SEAN. | 88 | | | Yes. | 6. |
| V.2. | 400 | Steel Castings. | SRN. | 44 | | | Yes. | 3. |
| V.3. | 600 | Steel Rolling. | SEAN. | 44 | | | Yes. | ½ |
| V.4. | 270 | Tube Drawing. | SRN. | 41½ | 2 | 63 | Yes. | 4. |
| V.8. | 670 | Steel Rolling. | SRN. | 44 | 1 | 36 | No. | - |
| V.9. | 130 | Die Casting. | | | 1 | 42½ | No. | |
| V.10. | 50 | Iron Founding. | | | 2 | 50 | No. | |
| Total | 3020 | 7 factories | 3 SRN. 3 SEAN. | 261½ | 6 | 191½ | 4 | 13½ |
| | Total factories "at risk"=32 | | | Total employees "at risk"=4,910. | | | | |
| | | **Order V1.** | | | | | | |
| V1.1. | 1800 | Shipbuilding & Repairing | 1 SRN 1 SEAN | 88 | | | Yes. | 1 |
| V1.2. | 2100 | Shipbuilding | SRN (Male) | 44 | | | Yes. | 4 |

Table 56 Continued....

| No. of Firm. | No. Employed. | Description. | Nurse. | Time/ week | F.A. Staff. | Time/ week | M.O. Emp. | Time/ week. |
|---|---|---|---|---|---|---|---|---|
| V1.3. | 3000 | Ship repairs. | SRN | 44 | | | Yes. | 5 |
| V1.4. | 1800 | Ship builders. | | | 3 | 132 | Yes. | 4 |
| V1.5. | 5000 | " " | | | 3 | 132 | Yes. | 3 |
| V1.6. | 2000 | " " & repairs. | | | 2 | 88 | Yes. | 3 |
| V1.7. | 2000 | " " & Eng. | | | 2 | 88 | Yes. | 3 |
| V1.8. | 900 | Mining Machinery. | | | 1 | 44 | Yes. | 2 |
| V1.9. | 375 | Electrical Insulators. | SEAN | $37\frac{1}{2}$ | 1 | $37\frac{1}{2}$ | Yes. | 2 |
| V1.10. | 4200 | Mixed Engineering. | 3 SRN | 132 | | | Yes. | 12 |
| V1.11. | 350 | Baking Machinery. | SRN | 44 | | | Yes. | $\frac{1}{2}$ |
| V1.12. | 350 | Engine Starters. | SRN | 44 | | | Yes. | 2 |
| V1.13. | 290 | Battery Manuf. | SRN | 44 | | | Yes. | 1 |
| V1.14. | 550 | " " | SRN | 44 | | | Yes. | 1 |
| V1.15. | 500 | Electrical Lamps. | SRN | 44 | | | Yes. | 1 |
| V1.16. | 5000 | Turbo Generators. | 4 SRN(2m) | 160 | 2 | 80 | Yes. | 20 |
| V1.17. | 5600 | Electrical Equipment. | 4 SRN<br>2 SEAN | 264 | 3 | 132 | Yes. | 20 |
| V1.18. | 290 | Pumps | SRN | 44 | | | Yes. | 5 |
| V1.19.<br>V1.20. | 5000<br>2500 | Mixed Engineering.<br>" " | 5 SRN<br>18 SEAN | 1012 | | | Yes | 40 |
| V1.21. | 210 | Electrical Insulators. | | | 3 | 110 | Yes. | 2 |
| V1.22. | 250 | Ship building. | | | 1 | 44 | No. | |
| V1.23. | 500 | Ship repairing. | | | 1 | 44 | No. | |
| V1.24. | 500 | Heavy Engineering. | SRN | 44 | | | No. | |
| V1.25. | 280 | Pneumatic Tools. | SRN | $45\frac{1}{2}$ | | | No. | |
| V1.26. | 200 | Printing Machinery. | SRN | $42\frac{1}{2}$ | 1 | 44 | No. | |
| V1.27. | 260 | Machine Tools8 | SRN | 40 | | | No. | |
| V1.28. | 60 | Shipbuilding. | | | 1 | 44 | No. | |
| V1.29. | 260 | Mining Machinery. | SRN | 40 | | | No. | |
| V1.30. | 185 | Welding Equipment. | SRN | 40 | | | No. | |
| V1.31. | 380 | Concrete Mixers. | SEAN | 44 | | | No. | |
| V1.32. | 240 | Radio Valves. | SRN | 44 | | | No. | |
| V1.33. | 710 | Radio Components. | SRN | 44 | | | No. | |

Table 56 Continued.....

| No.of Firm. | No.Employed. | Description. | Nurse. | Time/ week | F.A.Staff. | Time/ week | M.O. Employed. | TIME Week |
|---|---|---|---|---|---|---|---|---|
| V1.34. | 470 | Electric Cables. | S.R.N. | 38 | | | No. | |
| V1.35. | 150 | Radio Receivers. | S.E.A.N. | 44 | | | No. | |
| V1.36. | 710 | Radar Equipment. | S.R.N.<br>S.E.A.N. | 63½ | | | No. | |
| V1.37. | 170 | Marine Equipment. | S.R.N. | 44 | | | No. | |
| V1.38. | 400 | Mining " | S.R.N.(Male) | 44 | | | No. | |
| V1.39. | 350 | Constructional Eng. | S.R.N. | 44 | 2 | 28 | No. | |
| V1.40. | 200 | Fire Extinguishers. | | | 1 | 45 | No. | |
| V1.41. | 1800 | Marine Engineering. | | | 1 | 44 | No. | |
| V1.42. | 50 | Lighting Equipment. | | | 1 | 40 | No. | |
| V1.43. | 200 | Machine Tools | | | 1 | 44 | No. | |
| V1.44. | 600 | " " | | | 1 | 44 | No. | |
| V1.45. | 300 | Electrical Equipment. | | | 1 | 44 | No. | |
| V1.46. | 500 | Construction Eng. | | | 1 | 44 | No. | |
| V1.47. | 1800 | Marine Engineering. | | | 1 | 44 | No. | |
| V1.48. | 300 | " " | | | 3 | 132 | No. | |
| V1.49. | 450 | Ship Repairing. | | | 1 | 44 | No. | |
| V1.50. | 400 | " " | | | 1 | 56 | No. | |
| Total | 54580 | 50 factories | 38 S.R.N.<br>25 S.E.A.N. | 2707 | 39 | 1688½ | 21. | 131½ |

Total factories "at risk" = 166. Total employees "at risk" = 86,700.

Order V11

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| V11.2. | 850 | Railway Locomotives. | S.R.N. | 44 | | | No. | |

Total factories "at risk"=66. Total employees "at risk" = 7280.

Order V111

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| V111.1. | 950 | Oil Seals. | S.E.A.N. | 50 | 1 | 56 | Yes. | 2. |
| V111.2. | 840 | Metal Boxes. | S.R.N. | 44 | 1 | 44 | Yes. | 4. |
| V111.3. | 1250 | Wire & Hemp Ropes. | S.R.N. | 46 | 1 | 46 | Yes. | 2. |
| V111.4. | 130 | Small Tools. | S.R.N. | 44 | | | No. | - |
| V111.5. | 500 | Spring Forgings. | S.E.A.N. | 40 | | | No. | - |
| Total. | 3670 | 5 factories. | 3 S.R.N.<br>2. S.E.A.N. | 224 | 3 | 146 | 3 | 8. |

Total factories "at risk"= 76. Total employees "at risk" = 5770.

| No. of Firm. | No. Employed. | Description. | Nurse. | Time/ week | F.A. Staff. | Time/ week | M.O. Emp. | Time/ week. |
|---|---|---|---|---|---|---|---|---|
| | | **Order X.** | | | | | | |
| X.1. | 420 | Hemp Ropes. | S.E.A.N. | 44 | | | No. | |
| X.2. | 410 | Knitting of Yarn. | | | 1 | 39 | No. | |
| Total. | 830 | 2 factories. | 1 S.E.A.N. | 44 | 1 | 39 | Nil. | |
| | | Total factories "at risk" = 8. Total employees "at risk" = 2670. | | | | | | |
| | | **Order X11** | | | | | | |
| X11.1. | 750 | Men's Tailoring. | S.R.N. | 44 | | | Yes. | 4 |
| X11.2. | 1060 | " " | S.E.A.N. | 44 | | | No. | |
| X11.3. | 940 | " " | | | 1 | 44 | No. | |
| X11.4. | 300 | Underwear Manufacture. | | | 1 | 44 | No. | |
| X11.5. | 110 | Men's Tailoring. | | | 1 | 44 | No. | |
| X11.6. | 520 | " " | | | 1 | 44 | No. | |
| Total. | 3680 | 6 factories | 1 S.R.N. 1 SEAN. | 88 | 4 | 176 | 1 | 4 |
| | | Total factories "at risk" = 68. Total employees "at risk" = 9690. | | | | | | |
| | | **Order X111.** | | | | | | |
| X111.1. | 1000 | Tobacco Manuf. | SRN. | 44 | 2 | 88 | Yes. | 6 |
| X111.2. | 850 | Biscuit Manuf. | SRN. | 44 | 1 | 44 | No. | |
| X111.3. | 150 | Potato Crisps. | SEAN. | 45 | | | No. | |
| X111.4. | 200 | Patent Medicines. | | | 1 | $42\frac{1}{2}$ | No. | |
| X111.5. | 110 | Sweet Manuf. | | | 1 | 15 | No. | |
| X111.6. | 70 | Pet Foods. | | | 2 | 88 | No. | |
| X111.7. | 800 | Canning. | | | 1 | $42\frac{1}{2}$ | No. | |
| X111.8. | 360 | Toffee Manuf. | | | 3 | 135 | No. | |
| X111.9. | 60 | " " | | | 1 | 38 | No. | |
| Total. | 3600 | 9 factories. | 2 S.R.N. 1 SEAN. | 133 | 12 | 493 | 1 | 6 |
| | | Total factories "at risk" = 139 Total Employees "at risk" = 15,560. | | | | | | |
| | | **Order X1V** | | | | | | |
| X1V.1. | 350 | Bedding Manuf. | SEAN | 44 | | | No. | |
| X1V.2. | 600 | Furniture " | SRN | 44 | | | No. | |
| X1V.3. | 110 | Sawmilling. | " | | 1 | 44 | No. | |
| X1V.4. | 70 | Sawmilling. | | | 1 | 44 | No. | |
| X1V.5. | 400 | Plywood Manuf. | | | 3 | 66 | No. | |
| Total. | 1530 | 5 factories. | 1 SRN. 1 SEAN. | 88. | 5 | 154 | Nil. | |
| | | Total factories "at risk" = 81. Total employees "at risk" = 6630. | | | | | | |

## Order XV

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XV.1. | 120 | Litho printing of metal boxes | SEAN | 40 | | | Yes. | 1 |

Total factories "at risk"=81: Total employees "at risk"=6520.

---

## Order XV1

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| XV1.1. | 1100 | Laminated Plastics. | SRN 2SEAN | 122 | | | Yes. | $4\frac{1}{2}$ |
| XV1.2. | 500 | Rubber Hose Manuf. | SRN | 44 | | | Yes. | 2 |
| XV1.3. | 120 | Plastic Extrusions. | | | 1 | 44 | No. | |
| XV1.4. | 320 | Plastic coated wood. | | | 3 | 66 | No. | |
| Total | 2060 | 4 factories | 2SRN:2SEAN | 166 | 4 | 116 | 2 | $6\frac{1}{2}$ |

Total factories "at risk"=28: Total employees "at risk"=3390.

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auxiliary. A total of three hours medical time, and 44 hours nursing time, is thus devoted to the 5,450 population of this order.

<u>Order IV (Chemicals and Allied Trades).</u> Tables 55 & 56.

There are 45 factories and 9,800 of the insured population in this Order. Only 8 of the establishments employ any health personnel. Six employ part-time medical officers for a total of 12½ hours per week. Two of the I.M.O's supervise two full time, and one prt time S.R.N. A total of three full time and one part-time S.R.N.'s work in these factories for a total of 135 hours per week, and two full time auxiliaries work in one factory for 88 hours per week. Four of these eight factories employ between 600 and 800 people, three between 110 and 220, and the final one only about 50 people. This latter factory No.IV, 6 is a continuous process chemical plant which synthesises complex ion-exchange resins in a highly mechanised new plant. The paint firm No.IV, 8, employs only two first aid personnel to supervise the health of its 680 employees, who work in a notoriously hazardous industry. Nevertheless, it is the only one of the five Tyneside paint concerns which makes any provision whatsoever in this respect. The smaller firms in this Order, such as No.IV,3 and No.IV, 6, employ their medical officer to supervise the actual and potential hazards of the processes. Because of the nature of the work, this latter type of chemical concern is greatly aware of a doctor's potential contribution to Industry. Altogether 3,170 people are cared for by these personnel.

<u>Order V (Metal Manufacture).</u> Tables 55 and 56.

An estimated 3,600 of the 4,410 people in the Survey Population of this Order are cared for by some type of Industrial Health Service. There are 10 establishments, out of the 32 in the Order, which provide such a service. Seven part time doctors work a total of 18½ hours per week. The individual range of this supervision is wide; factory No.V, 1, employs a doctor for six hours per week for its 900 employees, whilst the steel rolling firm, No.V,3, is only attended by its I.M.O. for half an hour per week. It has 600 employees working in a not widely dis-similar environment. This latter I.M.O. (Dr.No.28) is, of course, a full time I.M.O. whose main charge is the parent steel works some 15 miles away. Firm No.V,7, is a local branch of a Bedford firm which has had experience of a co-operative type of Industrial Health Service on an Industrial Estate there. The attempt, on the part of this firm, to start a similar venture on its own initiative amongst its neighbouring factories in Jarrow, ~~is described on page Chapter~~ came to nought.

The two lead plants Nos. V, 5, and V, 6, are controlled by managements which well appreciate the hazards of the product. Each employs privately the Appointed Factory Doctor of the immediate locality to supervise the health of the work-force. The most lavishly provided establishment in the Order is No.V, 4. This factory is a small member of a national tube drawing and processing group, and the company-wide policy is to care for the health of their employees on this scale.

Of the total of three S.R.N.'s, three S.E.A.N.'s and six auxiliaries employed in this order, and who work a total of 261½ hours, only three of the auxiliaries are medically unsupervised. The single unsupervised S.R.N. in her turn supervises an unqualified woman auxiliary. The size-distribution of these firms with an Industrial Health Service closely resembles that of the Order as a whole.

<u>Order VI (Shipbuilding, Engineering, and Electrical Goods.</u> Tables 55,56: 57,58 and 59.

This Order contains some 166 establishments and employs some 86,700 of the Survey Population. As already described in Chapter 8, the range of the activities included in it is extremely wide, and it occupies a position of overwhelming economic importance on Tyneside. For this latter reason alone, it would demand closer attention than any other grouping of local industrial activity. However, the diversity of the Order, and the intense concentration within the Order upon shipbuilding made detailed attention essential. Furthermore because of the overwhelming position of Order VI it was decided that all those Survey Factories falling within it should be the subject of an individual investigation. The main points pursued in this further investigation within Order VI were:-

i) an attempt to check the accuracy of the returns to the postal questionnaires.

ii) an attempt to improve upon the accuracy of the data relating to the Factory Population.

It was felt that whilst a rough approximation of the true total number employed in each factory had been gained by the method shown in Chapter 10, it was necessary to improve on this. It was hoped to obtain the total number of the Insured Population for all factories in this Order.

The help of the three main Trade Associations covering the firms in Order VI was approached for their co-operation. Their responses to this

Table No. 57

Distribution of all Health Personnel in the Ship-Building and Repairing Industries. (Code No. 120)

| Factory No. | Population | Medical Officer. | Hrs.per Week. (E = Emergency Call only) | SRN | Time/ week | SEAN | Time/ week | First-Aid Personell | Time/ week |
|---|---|---|---|---|---|---|---|---|---|
| vI. 1. | 1,800 | ✓ | 1 | 1 | 44 | 1 | 44 | 0 | |
| VI. 2. | 2,100 | ✓ | 4 | 1(male) | 44 | | | 0 | |
| VI. 3. | 3,000 | ✓ | 5 | 1 | 44 | | | 0 | |
| VI. 4. | 1,800 | ✓ | 4 | | | | | 3 | 132 |
| VI. 6. | 2,000 | ✓ | 3 | | | | | 2 | 88 |
| VI. 7. | 2,000 | ✓ | 3 | | | | | 2 | 88 |
| VI. 5. | 5,000 | ✓ | 3 | | | | | 3 | 132. |
| VI. 9. | 1,000 | ✓ | ½ | — | — | Nil | — | — | — |
| VI. 26. | 60 | | | | | | | 1 | 44 |
| VI. 49. | 450 | | | | | | | 1 | 44 |
| VI. 22 | 250 | | E | | | | | 1 | 44 |
| VI. 50 | 400 | | E | | | | | 1 | 56 |
| VI. 23. | 500 | | | | | | | 1 | 44 |
| Total. 13. | 20, 260 | 8 | 23½ | 3 | 132 | 1 | 44 | 15 | 672 |

Table N O. 58 Order VI Total Health Personell

| Code No. | Supervised SRN. | Supervised SEAN. | Supervised First Aid. | Unsupervised SRN. | Unsupervised SEAN. | Unsupervised First Aid. | TOTAL ~~Supervised~~. SRN. | TOTAL ~~Supervised~~. SEAN. | TOTAL ~~Supervised~~. First Aid. | Medical Officers | Popilation at risk. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 120 | 3 | 1 | 10 | 0 | | 5 | 3 | 1 | 15 | 8 | 25,390 |
| 121 | 3 | | | 1 | | 5 | 4 | 0 | 5 | 1 | 10,270 |
| 122-140 | 5 | 18 | | 3 | | 2 | 8 | 18 | 2 | 2 | 9,550 |
| 141-142 | | | | 1 | | 3 | 1 | | 3 | | 1,470 |
| 154-168 | 1 | | 1 | 3 | 1 | 2 | 4 | 1 | 3 | 2 | 19,660 |
| 169 | 1 | | | 1 | | | 2 | | | 1 | |
| 170-172 | 6 | 3 | 9 | 1 | | | 7 | 3 | 9 | 5 | 14,110 |
| 180-199 | 6 | | | 3 | 2 | 2 | 9 | 2 | 2 | 4 | 6,250 |
| TOTAL | 25 | 22 | 20 | 13 | 3 | 19 | 38 | 25 | 39 | 23 | 86,700 |

approach were not enthusiastic. The Shipbuilding Association refused outright to co-operate, the Ship Repairing and Engineering Associations agreed to a limited amount of co-operation, upon certain rigid terms. It was stipulated that investigation would be by questionnaire, which could be drawn up by the Survey, but the Associations had to approve its form and content. It was to be circulated by the permanent officials of the Association, and returned to them. The results would then be tabulated in a form to be decided by the Associations, in order to preserve the anonymity of all the participating firms. These terms, unsatisfactory as they were, had to be accepted. There is no reason to suppose that the results so presented in this pre-tabulated way represented anything but the true data that was obtained from the returns. It did, however, handicap considerably the amount of crosstabulation that could have been done, if the raw material itself had been presented to the Survey for analysis. The part of this material which will be discussed later in this chapter relates to the day this investigation was carried out, viz:- 14th March, 1957.

The data relating to Order VI obtained from those sources common to the Survey as a whole will first be examined. As already stated there are 166 Survey Factories in Order VI, and the Survey Population of this Order is 86,700 people. Of these establishments 43 are engaged in shipbuilding and/or repairing and in marine engineering. A further 37 are in the group "other non-electrical engineering". Of the total 19 factories employing over 1,000 people, 5 are contained in this Order. Further details of this are given in Chapter 8, page 60, and in Appendix Table No. 7.

Of all these 166 factories, only 50 employing some 57,980 workers, also employ any of the health personnel being considered in this paragraph. Some 23 establishments employing 48,015 people employ a part- or full-time I.M.O. Of these doctors, 17 supervise the activities of 25 out of a total of 38 S.R.N.'s employed in Order VI, 22 out of 25 S.E.A.N.'s, and 20 out of 39 full-time first-aid auxiliaries (Table 58). The I.M.O.'s spend 134 hours per week caring for the people in their 23 factories. The S.R.N.'s and S.E.A.N.'s together spend 2,707 hours per week, and the first aid people spend 1,688½ hours per week in the 48 places which employ them. Only 2 establishments who employ a part-time medical officer, do not provide him with any nursing or auxiliary assistance.

One of the two full-time medical officers is employed by the two factories No. VI, 16, and VI, 17. The other full-time doctor is employed by the three establishments No. VI, 2, VI, 19, and VI, 20. The latter two places also employ the full-time physiotherapist, and a part-time chiropodist and optician. Together these two doctors work 88 hours per week in their establishments which is almost two-thirds of the total time devoted to this Order by doctors. These five factories employ 14 S.R.N.'s, 20 S.E.A.N.'s and 5 full time auxiliaries (Table 56), a disproportionately large number as these five places employ only 20,100 people of the 86,000 in the whole order.

Shipbuilding and shiprepairing employ 25,390 in 30 establishments. 13 of these places, employing an estimated population of 20,260 have some form of Health Service. Eight of them employ I.M.O.'s. One of these is the full-time doctor noted in the previous paragraph, who covers the shipyard No.VI, 2. A total of 23½ hours per week of medical time is given to these two industries. Three S.R.N.'s work a total of 132 hours per week, a single S.E.A.N. works for 44 hours and 15 First Aid people work a total of 672 hours per week (Table 57). These two industries employ 20.0 % of the whole full time auxiliaries - a disproportionately large share in relation to both its Survey Population, and its number of Survey Factories. This is, in part, explained by the opinion of management in shipbuilding and shiprepairing that women attendants, i.e.trained nurses, would be unpopular with the work-people (this is not borne out by the conversations with Trade Union leaders and officials), and in part by the feeling that a shipyard is a dangerous and rough place for a woman to work in. The fact that only one, out of the total of 19 of these personnel, is a State Registered Male Nurse, is at odds with these explanations.

It will be seen that all the 8 establishments which employ an I.M.O., also employ more than 1,000 people. All, apart from one, of these large units, also employ subordinate health staff. The remaining 5 smaller units all employ unsupervised first-aid men, but two of these places have doctors on emergency call should they desire rapid medical support.

Medical Supervision of Subordinate Staff.

There are 23 non-ship-building factories (Code numbers 121-199) in Order VI, which employ health personnel without providing them with medical supervision. Altogether these places employ 13 S.R.N.'s, 3 S.E.A.N.'s and 14 full time auxiliaries. Their distribution through the Order, and by size of factory employing them, is shown on Table 59 . It will be seen that the majority of them, i.e. 11 S.R.N.'s, 2 S.E.A.N.'s, and 9 auxiliaries are employed in medium sized establishments, i.e. those employing between 101 and 500 employees. There is little relationship between the numbers of these health personnel, and the population at risk in the various sub-grouping within the Order.

Table No. 59.

Order VI Non-Shipbuilding firms with Unsupervised Health Personnel.

Factory Size Grouping (No. of Employees.)

| Code No. | 11-50 | 51-100 | 101-250 | 251-500 | 501-1000 | 1001-2000 | Total. | Population 'at risk' |
|---|---|---|---|---|---|---|---|---|
| 121 | | | 1 SRN | 3 FA's. | | 2FA | 1 SRN.<br>5 FA. | 10,270 |
| 122-140 | | | 1SRN<br>1 FA | 2 SRN | 1 FA | | 3 SRN<br>2 FA. | 14.700 |
| 141-142 | | | | 1 SRN<br>3 FA | | | 1 SRN<br>3 FA | 9,550 |
| 154-168 | | | 1 SRN<br>1 FA | 2 SRN<br>1 SEAN | 1 FA | | 3 SRN )<br>1 SEAN )<br>2 FA ) | |
| 169 | | | | 1 SRN | | | 1 SRN ) | 19,660 |
| 170-172 | | | | 1 SRN | | | 1 SRN | 14,110 |
| 180-199 | 1 FA | | 1 SRN<br>1 SEAN | 1 FA | 2 SRN<br>1 SEAN | | 3 SRN<br>2 SEAN<br>2 FA | 6,250 |
| TOTAL. | 1 FA | NIL | 4 SRN<br>1 SEAN<br>2 FA | 7 SRN<br>1 SEAN<br>7 FA | 2 SRN<br>1 SEAN<br>2 FA | 2 FA | 13 SRN<br>3 SEAN<br>14 FA | 74, 540 |

In Summary.

The five establishments employing the full-time I.M.O., together with those covered by I.M.O. in the shipbuilding industry ~~last paragraph~~ employ an estimated 38,360 people. These 17 places also employ 10 (59.5%) of the I.M.O.'s for 111½ hours per week, (85.6% of the total worked in Order VI), and 17 (44.7%) of the S.R.N.'s; 21 (84.9%) of the S.E.A.N.'s and 20 of the full time auxiliary personnel are engaged here. When the overall position in the rest of the factories ~~groupings, other than Shipbuilding~~, is considered, several facts emerge (Tables No. 58 and 59). Of the 9 other firms which employ a doctor, one, No. VI, 10, which employs 4,200 people, engages an I.M.O. for 12 hours per week, and provides 3 full time S.R.N.'s. The other 8 all have under 1,000 employees, in fact 7 have fewer than 550 people. Firm No. VI, 23, is the largest of all these. As well as employing an M.O. for 2 hours per week, it also employs, for half his time, the single dentist in industrial practice, as well as a part-time optician. The service in this establishment is under the control of the Safety Officer to the firm, who is also an enthusiastic First Aid man. All but one of the remaining 7 smaller sized firms employ S.R.N.'s or S.E.A.N.'s; the one exception employs three full time first aid people. From the nature of their work it will be seen that these latter 8 firms are mostly of the newer and lighter type of engineering that has begun to enter the area since the Depression. Six of the eight factories are local plants of nationally owned groups.

The electrical industries (Code Numbers 170-199) with a Survey Population of 20,360 employ 16 S.R.N.'s and 11 Auxiliaries, as well as 9 sessions of an I.M.O.'s time. The position has, in part, been referred to already as grouping No. 170-172 contains the two large electrical firms IV, 16, and IV, 17, employing a full time I.M.O. When these are removed from the electrical industries, it will be seen that the remaining 6,250 people (all in grouping 180-199) still have a larger proportion of full time health personnel than any other grouping. These, as noted, are largely factories making the lighter type of engineering product, and 8 of the 9 establishments in the grouping are locally established subsidiaries of major national concerns. The estimated 10,270 people employed in marine-engineering, Code No. 121, are particularly badly served by medical, nursing, and first aid attendants at work. The grouping Code No. 122-140, contains the two large engineering factories Nos. IV, 19, and IV, 20, already considered. These employ some 7,500 of the 9,550 in the grouping. They are, of course, relatively well supplied with nursing staff who are supervised by a full time medical officer. Of the remaining grouping 141-142 is small, and as is seen from Table No. 58 relatively well provided for. The grouping 154-169 contains most of the newer non-electrical light engineering of the region. It employs some 19,660 people, and 6 S.R.N.'s, 1 S.E.A.N, and 3 First Aid auxiliaries work in 8 of its factories, 7 of these people being unsupervised.

In Summary

Order VI contains some half of the total employed people, of the area. It contains 38 out of the total of 55 S.R.N.'s, 25 out of 37 S.E.A.N.'s, and 39 out of 79 full time auxiliary personnel employed in the Survey Factories. Out of the total of 36 factories covered by I.M.O.'s, this Order contains 23. These men work a total of 134 hours out of the overall total of 201½ hours per week spent by doctors in all of Tyneside industry. It must be remembered that all these positions are heavily biased by the presence in the Order of the 5 large establishments which employ 2 full time medical officers, and a total of 14 S.R.N.'s, 20 S.E.A.N.'s and 5 auxiliaries between them. When these places are discounted, there is less adequate overall coverage. The shipbuilding industry does not favour the employment of trained nurses of either sex, but tends to rely upon first-aid men instead. The marine engineering industry, to a great extent controlled by parent shipbuilding firms, is much less well covered by medical and other health personnel. However, when the hours worked per week by these doctors are considered, there is less discrepancy, 23½ hours per week being given to shipbuilding, and 12 hours per week given to marine engineering. This is solely due to the single large firm No. VI, 10, which employs its M.O. for 12 hours per week. Overall in relation to their Survey Populations, the electrical industry, and particularly grouping 180-199 is the best served by medical and other health staff. It does, however, contain a relatively high proportion of unsupervised nurses. This latter point is probably accounted for by the size structure of the factories of this grouping. There are 10 out of a total of 22 places which employ between 101, and 1,000 workers. These factories presumably do not consider that it is necessary to employ a doctor to cover this number of employees once they have engaged a trained nurse. Overall it is the larger establishments which employ a doctor, and the medium sized ones which employ the unsupervised peronnel (See table 60).

Confirmatory Investigation conducted by Trade Associations.

As mentioned at the beginning of this section, the help of the Trade Associations was sought in an attempt to improve upon the accuracy of the population data and to check upon the data given in the original postal survey, about the medical

Table No. 60.

Medically Supervised and Unsupervised Nurses in Relation to Factory Size Groupings.

| Supervision. | Factory Size grouping (No. of Employees) 11-50 | 51-100 | 101-250 | 251-500 | 501-1000 | 1001-2000 | 2001-5000 | 5000+ | Total. |
|---|---|---|---|---|---|---|---|---|---|
| Unsupervised. | | | 7 | 10 | 7 | 1 | | | 25 |
| Supervised. | | | 1 | 10 | 12 | 7 | 9 | 29 | 68 |
| Total. | | | 8 | 20 | 19 | 8 | 9 | 29 | 93 |

Table No. 60a

Medically Supervised and Unsupervised First-Aid Personell in Relation to Factory Size Groupings.

| Supervision. | 11-50 | 51-100 | 101-250 | 251-500 | 501-1000 | 1001-2000 | 2001-5000 | 5000+ | Total. |
|---|---|---|---|---|---|---|---|---|---|
| Unsupervised | 3 | 5 | 11 | 21 | 8 | 2 | | | 50 |
| Supervised. | | | 3 | 3 | 5 | 7 | 5 | 3 | 26 |
| Total. | 3 | 5 | 14 | 24 | 13 | 9 | 5 | 3 | 76 |

and other personnel employed by firms. This was thought to be necessary in view of the local importance of this Order. As already stated the Shipbuilders' Association refused to co-operate from the outset. This was not such a great handicap as would first appear. All but one of the eight major building establishments were found also to repair ships. Thus the data from the Ship Repairers investigation referring to the population of these establishments was useless, as it referred only to that proportion of the total work-force of these yards that was engaged upon repairing. However, the data that was provided about the health personnel that were employed was useful. (All the 15 members of this Association replied to the questionnaire. They are, in fact, all those yards, included under Code No. 120, and employing over 250 people, minus the one large yard, No.VI, 2, which does not repair ships at all.) It had been previously ascertained that all the yards' work-forces used the resources of their Health Services, regardless of whether repairing or building was being done by the person needing attention. Thus, indirectly, it was possible to check the facts about the employment of health personnel for all the major units in shipbuilding as well as repairing. It was estimated impossible to improve upon the figures for the factory populations given in the Factory Register. It turned out that the data from this survey relating to the employment of health personnel, confirmed that already obtained from the postal questionnaire as completely accurate. No further comment need be made other than to re-emphasize the qualification to be attached when comparing the estimated Factory and Survey Populations of this industry.

The Engineering Associations' enquiry proved to be just as difficult to carry out. There are 92 members of this Association in the Tyne Area. This area roughly corresponds to the Survey Area, and includes all the main industrial area and only omits some of the peripheral agricultural land. They represent 67.7% of the total of 136 engineering Survey Factories. Of these 92 members 72 or 78.3% replied to the questionnaire sent out by the Association. The way in which the summated and anonymous data of this enquiry was presented made it virtually useless for further analysis. It was impossible to identify the individual firms which replied, or not. As such a large proportion failed to reply, and could not be identified, there was no way in which to co-rellate these positive findings of the Association's enquiry with the findings of the original postal enquiry. For similar reasons it proved impossible to discover the true working population of the factories concerned. An attempt was made, without success, to have the Association's stipulation, about maintaining the anonymity of all returns relaxed. Thus whilst there had been obtained much useful raw data, it was impossible to fit it into the background of existing statistical Survey data.

Thus the attempt to establish the true working population employed in Order VI failed. The attempt to check the accuracy of that information already provided, relating to health personnel employed, was similarly abortive for the Engineering Industry, but not for Shipbuilding.

Order VII (Vehicles).

Of the 7,280 employed, and the 66 establishments classed in this Order, there are only 930 people employed in two establishments who have the benefit of either medical or nursing advice at work. One small establishment No. VII, 1, employing 80 people engaged an unassisted M.O. for 3 hours per week. This place is owned by the same firm which controls factories No.V, 1, and V, 2, and it employs the same Doctor (No.26). The other factory employs a full time S.R.N. to care for its 850 people, who make locomotives. This factory is owned by the same large engineering combine which owns establishment No. VI, 36. Both these places employ unsupervised nurses. None of the 62 Survey Factories engaged upon the construction or repair of motor vehicles has any form of medical or nursing supervision.

Order VIII (Metal Goods, not elsewhere specified).

There are 76 establishments in the Order, and a Survey Population of 5,770. Five of these establishments, with a total estimated population of 3,670 are covered by one or more categories of health personnel. Three M.O.'s work a total of 8 hours per week, and supervise three factories, 2 S.R.N.'s, 1 S.E.A.N. and 1 auxiliary. There are 1 unsupervised S.R.N. and 1 unsupervised S.E.A.N. also employed. This total of 5 trained nurses work 224 hours per week, and the 3 auxiliaries work 146 hours per week.

The 4 largest of these 5 firms are also the 4 largest establishments in the whole Order. A high proportion (63.6%) of the population of this Order is cared for at work in some way by health personnel. Only a relatively small proportion (6.6%) of the total number of factories is so covered. This discrepancy is due to the extremely high number, 57, of places employing 50 people and under.

Order X (Textiles).

There are 8 factories making and/or processing textiles, and altogether the whole Order has a Survey Population of 2,670. Only 830 of these, in two factories, have nursing advice available to them. One factory employs an S.E.A.N. for 44 hours per week, and the other a full time female auxiliary for 39 hours. Neither of these ladies has any medical supervision. These two factories are the largest in the Order.

Order XII (Clothing).

There is a Survey Population of 9,690 people employed in the manufacture of all types of clothing, and there are 68 Survey Factories in this Order. Six of these, employing 3,680 people, make some sort of health provision for their work people. There is one M.O. who works for 4 hours per week in a tailoring factory employing 750 people, mostly women. They also have the services of an S.R.N. in this establishment. Another tailoring firm employing 1,060 people employs an unsupervised S.E.A.N. to care for them, and she works 44 hours per week. The remaining 4 firms employ unsupervised female auxiliaries to care for their people, and they work a total of 176 hours each week. Again it is the largest firms that have made provision in this respect. Five out of the six largest in the Order, i.e. employing over 250 people, are included in the above description. There are, however, a relatively larger number, 30, of establishments making clothing that are in the intermediate size range of 51-250 employees. Only one of these makes any provision for the care of its workers' health.

Order XIII (Food, Drink and Tobacco).

There is a Survey Population of 15,560 in this Order, and a total of 139 Survey Factories. Some 9 of these make some health provision, and they employ an estimated 3,600 people. Only one M.O. (no. 29) is employed in the whole Order. He works for 6 hours in a tobacco factory, No.XIII, 1, and supervises 1 S.R.N. and 2 auxiliaries. The remaining 8 factories employ 1 S.R.N. and 1 S.E.A.N., together working 133 hours per week, and 10 auxiliaries who work a total of 405 hours per week. One of these latter works under the supervision of an S.R.N., but the remainder are unsupervised. ~~In~~ Factory No.XIII, 8, is a continuous process toffee and sweet factory, and the 3 auxiliaries are engaged upon shift-working round the clock. One of the most striking omissions from those establishments making some provision, are the large multiple bakeries, the breweries, and the large dairies. None of these provide any medical or nursing supervision for their staff. It is not surprising, however, that such a small percentage (6.5%) of the total number of establishments are covered, when it is realised that 76.3% of them employ 50 people and under. Nevertheless, the remaining 33 larger places are thinly served if the nature of their activity is considered with reference to the general public health.

Order XIV (Manufacture of Wood and Cork).

There are 81 Survey Factories in the Order, and a Survey Population of 6,630. Five establishments provide some sort of health cover for their staff, and these have an estimated population of 1,530. Factories No.XIV, 1 and XVI, 2, are both owned by the same large retailing chain-store organisation with wide national interests. Whilst it is not strictly true that the S.R.N. and S.E.A.N. employed in these two factories are unsupervised, their medical backing is so remote that they have been so categorised. In fact, the parent organisation has a Medical Advisor at its headquarters in London, and he can be called upon for advice if necessary. In fact, this source of medical coverage is so remote that it is found to be of relatively little value to the nurses in dealing with their immediate problems. There are 5 full-time auxiliary staff working unsupervised for a total of 154 hours per week. Three of these working in a continuous process plywood factory, work a three shift rota, (Factory No.XIV, 5) and their services are shared with Factory No.XVI,4, which is located immediately next door, and which similarly works a continuous process plant.

There is no I.M.O. in this Order and so the total of 1 S.R.N., and 1 S.E.A.N. and 5 Auxiliaires have no medical supervision at all.

It should be mentioned that whilst the Census of Industry (Appendix Table No.7) shows factory No.XIV, 1, as two separate establishments in the 101-250 size group (Code No.566 in the South West) they are, in fact, administratively treated as one unit, and one so treated in this description. This was a situation that was not appreciated until the factory was visited personally, and by that time the tabulation of the Census data had been completed. It is hoped that this explains the discrepancy. As in the other Orders, it is the factory employing 50 persons and under that make no health provision in this respect. In this Order these small factories, are mostly small saw-milling and manufacturing joinery establishments.

Order XV (Paper and Printing).

There are 81 Survey Factories and a Survey Population of 6,520 in Order XV. Only two establishments, employing a total of 490 people, have any form of health attention given to them. Both employ part-time I.M.O.'s. One of these doctors (No.15) is without any assistance (Factory No.XV,2), but he is a general practioner who visits for an hour daily, and is close to his own surgery where such help can be provided if needed. Factory No.XV, 1 is owned by the concern which controls Factory No.IV,2, and the same woman doctor (No.27) attends both of these adjacent factories. There is a total absence of advice available to the printing industry (Code No. 623). This, the result of its organisation in numerous small units, probably accounts for the overall lack of health provision in the Order.

## Order XIV (Other manufacturing Industries).

In this final order there are 28 establishments and a Survey Population of 3,390. Four factories with a total estimated population of 2,160 people are provided with some health service. Two doctors are employed for a total of 6½ hours per week, and they supervise 2 S.R.N.'s and 2 S.E.A.N.'s. There are also 4 auxiliary personnel working a total of 116 hours per week, all of whom are unsupervised. Those in factory No. XVI, 4, are of course shared with Factory No. XIV, 5. The former of these two places is controlled by the owners of factories No. XIV, 1, and No.XIV, 2. As before, it is the larger firms which have made health provisions for their workforces. All of these establishments in this Order are owned by larger companies who operate on a nationwide basis, and who are centred elsewhere in the country.

There is no health service in Orders IX and XI.

## Health Personnel in the Survey Industries in General.

i).Medical Officers. Some attention has already been paid to the type of work that is performed by local doctors in Tyneside industry. In this section will be considered the distribution of these practioners throughout the Survey Industries, as a whole. There are, as has been already stated, 29 doctors engaged full-time or on a part-time sessional basis on Tyneside industry. Two of these are full-time M.O.'s, who distribute their time throughout five large units in the ship-building and engineering industries - Order VI. Five other doctors are working on a sessional basis in various industries, whilst being engaged upon forms of medical activity other than general practice. The final 22 part-time M.O.'s are all general practioners primarily.

The distribution of the sessional time spent by these Industrial Medical Officers is shown in Table 61. Table No.54 shows that these 28 men and the single woman work for a total of 48 industrial establishments, covered by the scope of this Survey. The same table shows the distribution by size within the Industrial Orders of these establishments. In each case the total number of Survey Factories at risk in each category is given. The greatest single numerical

Table. No. 61.

Number of Hours M.O's times related to Industrial Orders and Factory Size-Groupings (No. of Employees)

| Industrial Order. | 51-100. | 101-250. | 251-500. | 501-1000. | 1001-2000. | 2001-5000. | 5000 +. | Total. |
|---|---|---|---|---|---|---|---|---|
| III | | | | 3 | | | | 3 |
| IV | 1 | $2\frac{1}{2}$ | | 9 | | | | $12\frac{1}{2}$ |
| V | | 5 | 7 | $6\frac{1}{2}$ | | | | $18\frac{1}{2}$ |
| VI | | 2 | $11\frac{1}{2}$ | $3\frac{1}{2}$ | 15 | 82x | 20x | 134 |
| VII | 3 | | | | | | | 3 |
| VIII | | | | 6 | 2 | | | 8 |
| IX | | | | | | | | |
| X | | | | | | | | |
| XI | | | | | | | | |
| XII | | | | 4 | | | | 4 |
| XIII | | | | 6 | | | | 6 |
| ~~XV~~ XIV | | 1 | 5 | | | | | 6 |
| XVI | | | | 2 | $4\frac{1}{2}$ | | | $6\frac{1}{2}$ |
| Total. | 4 | $10\frac{1}{2}$ | $23\frac{1}{2}$ | 40 | $21\frac{1}{2}$ | 82x | 20x | $201\frac{1}{2}$ |

x See note on Table 69.

total of factories served by these doctors lies in the engineering and shipbuilding group of industries,(Order VI). Twenty-three of these factories employ a doctor. Order IV (Chemical and Allied Trades) has six factories, and Order V (Metal Manufacture) has seven factories so served. The latter Order is relatively better off than the former as it has fewer total factories at risk. Thereafter in the other remaining Orders, the number of places covered by medical care and advice falls off very steeply, as is seen from the Table. The coverage in these is so meagre as to call for no further comment beyond that which has already been made in paragraphs above. It is to be noted that the 122 factories or one-seventh of the total of 856 Survey Factories, which are contained in Orders IX,X,XI, XIV have no medical attendants at all. It will be seen from the Census of Industry that 100 of these employ under 101 people. In fact 82 of them employ less than 51 people. The significance of this size distribution becomes more obvious when the distribution of those places with medical attendants by size groupings is studied. Eight of the ten factories employing more than 2,000 people have a medical attendant. Just over three quarters of those that employ between 1,000 and 2000 are so provided for, as are over half of the places employing between 501 and 1,000 people. Below this size, the proportion of establishments employing an I.M.O. in relation to the total at risk falls off very steeply indeed. There is not a single factory in the smallest size group, i.e. 11-50 employees, attended by a doctor, and only ten between 51-250 are so covered. Thus out of a total of 752 factories employing under 251 people, only 10 have medical attendants.

In Table 61 is shown the number of hours worked per week by these doctors in the various industrial orders of the Survey Factories. Once again Order VI's lead is considerable, but this predominance is sharply reduced if the time of the two full-time medical officers, who contribute 88 hours to the total, are removed, together with the five establishments for which they are responsible. This leaves some 46 hours per week of medical time devoted to 18 factories. The seven places with medical attendants in Orders IV and V have 12½ and 18½ hours per week devoted to them respectively. Thereafter the number of hours devoted to any one Order of the Survey Industries does not reach double figures.

When the time devoted to factories distributed according to size groupings is considered, it would appear that the eight factories in the upper size ranges have over half the total medical time which is devoted to industry. If the time of the two full time medical officers is again removed, it is seen that the intermediate size range between 251 and 2,000 has over two-thirds of the remaining time given to them. This is greatly out of proportion to the numbers of people at risk in each size grouping. The populations are roughly equal in each size grouping from 101 employees upwards (Table 46).

At this point it is convenient to consider the distribution of those firms which have made arrangements with a local resident doctor, in all cases a general practioner, to attend their factory in cases of emergency. This in effect means that when a severe traumatic accident occurs someone of responsibility in the establishment considers that urgent medical advice is needed on the spot. Such doctors are usually paid a retaining fee for their services, whether they happen to be called upon or not. There is not a great deal of precision about these arrangements, and in fact it seems that only very occasionally are they made use of. The person in need of urgent medical attention can usually be got to hospital more quickly than the doctor can be found whilst out on his rounds. Nevertheless, the managements with whom this type of arrangement has been discussed are convinced of its value, although they are seldom able to give convincing reasons for this attitude.

Some 19 factories have permanent emergency call arrangements with a doctor, and all but one of these employ under 500 people (Table 62). It seems to be those factories employing between 100 and 500 people who find this arrangement most useful. Presumably these are the places which feel that it is not worthwhile engaging a doctor on a sessional basis, but which think this arrangement is better than no provision at all. Surprisingly only one of the 554 factories employing under 51 people has this type of provision. Order VI is prominent as it accounts for almost half of the total numbers of this type of coverage. The other Orders do not call for any special comment.

ii). Trained Nurses. There are a total of 93 nurses working in the Survey Industries; there are 56 S.R.N.'s and 37 S.E.A.N.'s. Their distribution by size of factory within each of the Industrial Orders is shown on Table 63. The number of these nurses employed in individual establishments by the size of these establishments is shown on table 64. It is seen from this that there are a total of 54 factories employing trained nurses on Tyneside.

Of these 54 places, 45 employ only one nurse, usually without assistance, but one factory has an S.R.N. assisted by an auxiliary. A further 8 nurses are employed on 4 establishments, 6 in another two factories, & one place employs 4 more. The balance of 29 nurses, that is 20 S.E.A.N.'s and 9 S.R.N.'s, are employed in the two largest establishments in the area. It is this largest size-grouping of Survey Factories, i.e. over 5,000

Table No. 62.

Doctors on Emergency Call in relation to Industries and Factory Size-Grouping.

| Industrial Order. | 11-50 | 51-100 | 101-250 | 251-500 | 501-1000 | 1001-2000 | 2001-5000 | 5000+ | Total. |
|---|---|---|---|---|---|---|---|---|---|
| III | 1 | | | | | | | | 1 |
| IV | | | | | | | | | |
| V | | | | 1 | | | | | 1 |
| VI | | 1 | 4 | 3 | 1 | | | | 9 |
| VII | | | | | | | | | |
| VIII | | | 1 | | | | | | 1 |
| IX | | | | | | | | | |
| X | | 1 | | | | | | | 1 |
| XI | | | | | | | | | |
| XII | | | 1 | | | | | | 1 |
| XIII | | | 1 | | | | | | 1 |
| XIV | | 1 | | 2 | | | | | 3 |
| XV | | | | | | | | | |
| XVI | | | 1 | | | | | | 1 |
| TOTAL. | 1 | 3 | 8 | 6 | 1 | | | | 19. |

Table No. 63.

Distribution of Nurses and Full Time First-Aid Personnel
by Industrial Orders & Factory Size Groupings

Factory Size Groupings (No. of Employees)

| Industrial Order. | 11-50 | 51-100 | 101-250 | 251-500 | 501-1000 | 1001-2000 | 2001-5000 | 5000+ | Total Personell. | 'at risk'. | Covered. | No. of Factories 'at risk' |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| III | | | | | 1 SRN | | | | 1 SRN | 5450 | 630 | 42 |
| IV | | | | | 4 SRN<br>2 FA | | | | 4 SRN<br>2 FA | 9800 | 2780 | 45 |
| V | 2 FA | | 1 FA | 2 SRN<br>2 FA | 1 SRN<br>3 SEAN<br>1 FA | | | | | 4910 | 3020 | 32 |
| VI | 1 FA | 1 FA | 4 SRN<br>1 SEAN<br>7 FA | 12 SRN<br>2 SEAN<br>11 FA | 3 SRN<br>1 SEAN<br>2 FA | 1 SRN<br>1 SEAN<br>9 FA | 9 SRN<br>5 FA | 9 SRN<br>20 SEAN<br>3 FA | 38 SRN<br>25 SEAN<br>39 FA | 86700 | 53,680 | 166 |
| VII | | | | | 1 SRN | | | | 1 SRN | 7280 | 850 | 66 |
| VIII | | | 1 SRN | 1 SEAN | 1 SRN<br>1 SEAN<br>2 FA | 1 SRN<br>1 FA | | | 3 SRN<br>2 SEAN<br>3 FA | 5770 | 3670 | 76 |
| IX | | | | | | | | | | 760 | 0 | 14 |
| X | | | 1 FA<br>1 SEAN | 1 FA<br>1 SEAN | | | | | 1 FA<br>1 SEAN | 2670 | 830 | 8 |
| XI | | | | | | | | | | 1320 | 0 | 10 |
| XII | | | 1 FA | 1 FA | 1 SRN<br>2 FA | 1 SEAN | | | 1 SRN<br>1 SEAN<br>4 FA | 9690 | 3680 | 68 |
| XIII | | 3 FA | 2 SEAN<br>2 FA | 3 FA | 2 SRN<br>4 FA | | | | 2 SRN<br>1 SEAN<br>12 FA | 15560 | 3600 | 139 |
| XIV | | 1 FA | 1 FA | 1 SEAN<br>3 FA | 1 SRN | | | | 1 SRN<br>1 SEAN<br>5 FA | 6630 | 1530 | 81 |
| XV | | | 1 SEAN | | | | | | 1 SEAN | 6520 | 120 | 81 |
| XVI | | | 1 FA | 1 SRN<br>3 FA | | 1 SRN<br>2 SEAN | | | 2 SRN<br>2 SEAN<br>4 FA | 3390 | 2160 | 28 |
| Total. | 3 FA | 5 FA | 5 SRN<br>3 SEAN<br>13 FA | 15 SRN<br>5 SEAN<br>24 FA | 15 SRN<br>5 SEAN<br>13 FA | 3 SRN<br>4 SEAN<br>10 FA | 9SRN<br>5FA | 9 SRN<br>20 SEAN<br>3 FA | 56 SRN<br>37 SEAN<br>76 FA | 166,450 | 76,330 | 856. |
| Factories Covered. | 2 | 4 | 19 | 31 | 23 | 8 | 6 | 2 | 2 | 95 | | |
| Factories 'at risk' | 554 | 95 | 103 | 58 | 27 | 9 | 8 | 2 | 2 | 856 | | |
| Estimated Population 'at risk' | [illegible] | 6,761 | 17,344 | 20,792 | 19,581 | 11,551 | 24,000 | 12,667 | | 132,697 | | |

Table No. 64.

Distribution of Nurses in relation to Size of Factory. [redacted]
(No. of Employees)

| No. of Nurses. | 11-50 | 51-100 | 101-250 | 251-500 | 501-1000 | 1001-2000 | 2001-5000 | 5000+ | Total. |
|---|---|---|---|---|---|---|---|---|---|
| 1 | | | 8 | 20 | 13 | 2 | 2 | | 45 |
| 2 | | | | | 3 | 1 | | | 4 |
| 3 | | | | | | | 1 | | 1 |
| 4 | | | | | | 1 | 1 | | 2 |
| 5+ | | | | | | | | 2 | 2 |
| Total. | 0 | 0 | 8 | 20 | 16 | 4 | 4 | 2 | 54 |
| Total No. Of Nurses. | 0 | 0 | 8 | 20 | 19 | 8 | 9 | 29 | 93 |
| Total Factories 'at risk' | 554 | 95 | 103 | 58 | 27 | 9 | 8 | 2 | 856 |
| Total Population 'at risk' | 13,158 | 6,761, | 17,344 | 20,792 | 19,581 | 11,551 | 24,000 | 12,667 | 132,697 |

employees, that employs the largest single number of nurses, i.e. 29 for an estimated 12,500 people. Strangely, the next best provided group of establishments are those which employ between 251 and 500 people, which has 20 nurses in 20 factories, out of 58 at risk. This is closely followed by the 501-1,000 grouping which employ 19, in 16 factories out of the 27 at risk. There is a rapid fall to the next most prominent group where 9 nurses are employed in all those 9 factories which are in the 1,001-2,000 group. Eight nurses are each employed in the two size groupings 2,001-5,000 and 101-250, but they cover 3 out of 8, and 8 out of 103 factories respectively. There are no trained nurses employed in the lowest size groupings, i.e. under 101 employees, which contain 649 out of 856 factories. Naturally it is only the larger units which employ the multiple numbers of nurses, and altogether there are only 9 factories employing more than one nurse. Those people working in the two largest factories are, in terms of amount of nursing skill provided, the best cared for, there being 1 nurse to every 437 people. In size groupings 251-500 employees and 501-1,000 employees the provision is roughly equal in this respect, their being one nurse to every 1,050 people and 979 people at risk respectively, in both these groups. The position is almost the same in the 1,001-2,000 group where there is one nurse for 1,444 people at risk. Thereafter the position falls away. There is only one trained nurse to every 3,000 of the estimated population in the 2,001-5,000 group, although the position is a little better in the 101-250 group, where one nurse serves, on the average 2,168 employees. It must be stressed that these figures are only averages for each group. The activity of each nurse is limited to the premises of her employing firm in all cases. These employing firms have averaged below this figure, but of course, firms without nurses raise the overall average coverage. Another picture of the situation is obtained by observing what proportion of the total number of establishments in each group is covered, rather than the average population served (Table 64). In this way it is seen that the situation is slightly different. The 1,001-2,000 group is now the best provided with trained nurses ~~having~~ (4 out of 8 establishments,) after the ~~largest~~ 5000+ group, therefore followed by the 501-1,000 group with 16 out of 27 establishments covered by nurses, the 2,001-5,000 with 3 out of 8, and then the 251-500 group with 20 out of 58 factories with nurses. The least well served is the 101-250 group, with only 8 out of 103 establishments having trained nurses. None of the smaller groups have any nurses at all.

Within the Industrial Orders as opposed to the size groupings the dominance of Order VI is naturally the most noticeable, there being 63 trained nurses in this Order. The totals of trained nurses in the other Orders are much smaller and never reach double figures. The proportions of the total establishments in these Orders which employ a trained nurse is seen by comparing columns (b) and (d) in Table 63.

Full Time First Aid Staff.

There are a total of 75 full time first aid auxiliaries employed in 52 establishments on Tyneside. Their distribution in factory size groups by the total numbers of auxiliaries employed in single factories is shown on Table 64A. The distribution within size groupings by Industrial Orders is shown on Table 63. There are several points of contrast in the distribution by size-groups with the similar distribution of trained nurses. Only 3 auxiliaries work in the largest size group and these are employed along with 6 trained nurses, by 1 of the 2 firms in this group. The largest numbers of auxiliaries, like trained nurses, work in the size group 251-500 employees. The auxiliaries tend to work more in multiples than do the nurses. Some 16 out of 24 in this size group work with colleagues, whereas none of the trained nurses in the size group work with other trained nurses. The most likely explanation for this would appear to be that these multiples of auxiliaries are employed by the continuous process firms, who under the Factory Legislation must provide first aid coverage for the full 24 hours. Under these circumstances, it is cheaper to employ three full-time auxiliaries, than three trained nurses for the task. (Assuming that it is the policy of these firms to employ a person solely upon these duties). The distribution throughout all the other size groups resembles that of the trained nurses. There are, however, 8 auxiliaries employed in the 2 smallest size groups, whereas no nurses are found here.

Some one-third of all first aid people tend to work in multiple groupings, whereas only one-fifth of trained nurses do so. Furthermore there is a regular progression, shown in table 64, for the number of multiples of nurses working together, to increase with factory size. No such progression is shown for the auxiliaries. There is a wider scatter of multiples and no steady progression of this feature with increasing size (Table 64A). This in part is explained by the practice of the larger firms to dilute trained staff with auxiliaries.

Within the Industrial Order VI there is a relatively low proportion of first aid workers to trained nurses. It is, however, commoner for them to work in multiples in this Order, than do the nurses. The most striking preponderance of auxiliaries over Nurses is in Order XIII (Food, Drink and Tobacco). This is pronounced but

Table No. 6[illegible].A.

## Distribution of Full Time First Aid Staff in relation to Size of Establishment.

Factory Size-Grouping (No. of Employees)

| No. of F.A. Staff. | 11-50 | 51-100 | 101-250 | 251-500 | 501-1000 | 1001-2000 | 2001-5000 | 5000+ | Total Factories |
|---|---|---|---|---|---|---|---|---|---|
| 1. | 1 | 3 | 10 | 8 | 9 | 2 | | | 33 |
| 2. | 1 | 1 | | 2 | 2 | 2 | 1 | | 9 |
| 3 | | | 1 | 4 | | 1 | 1 | 1 | 8 |
| 4. | | | | | | | | | |
| 5. | | | | | | | | | |
| Total ~~[illegible]~~ FACTORIES | 2 | 4 | 11 | 14 | 11 | 5 | 2 | 1 | 50 |
| TOTAL ~~Per~~sonell. | 3 | 5 | 13 | 24 | 13 | 10 | 5 | 3 | 76 |

difficult to explain. No doubt many of the small firms in this Order do not think it justifiable to pay the salary of a trained person, when the type of treatment and service required in this industry appears to be adequately provided for by an auxiliary. This, it is suspected, is only a partial answer, as in fact the vast bulk of the small firms in this Order do not provide any coverage at all. There does not seem to be any other feature worthy of comment in the remaining Orders.

## The Adequacy of Medical, Nursing and First Aid given to Tyneside Industry.

It is proposed now to compare in arithmetical terms the adequacy of the Health services of the various Industrial Orders, and factory size groupings. An attempt will be made to relate the number of establishments covered by these personnel to those not so covered; to compare the population served to the population at risk (Tables 65 ~~and~~ 69). It is intended to make no distinction in this analysis between the trained nurse and the untrained, but full-time auxiliary. No attempt was made during this survey to investigate objectively the quality of service given by these two types of personnel, and thus it would be out of place to differentiate between them, on general empirical grounds, for present purposes.

A general description of the Survey Population working within each Survey Order of Industry and the places of their work has been given in Chapters 9. and 10. and will be found tabulated in Tables 44 and 45 and the Appendix Table 9.

## Nursing and Auxiliary Personnel.

Over half the Survey Population work in Order VI where less than one-fifth of all the Survey Factories are found. All the largest factories are also to be found here. Some 50 of the 166 factories in this Order employ some 102 out of the total of 168 full-time nursing and first aid workers. These covered establishments have a population of 54,580 people. Order V (Metal Manufacture) and Order VIII have the largest proportion (61.5% and 63.6%) of their populations covered by these personnel, whilst Order XV (1.9%), followed by Orders III and VII, has the lowest proportion. The largest absolute number of the population unprovided for in this respect is, of course, Order VI, with some 32,000 people who do not have the services of either a full-time nurse, or first aid attendant to call upon whilst at work. When the nature of much of the local industry included in this Order is considered there is surely here a real health problem, the challenge of which has still to be met. Order VI, also has 116 factories, unserved by full time health personnel of this type.

Table 65

## Survey of Full Time Nursing & F.A. Personnel

| Order. | No.of.Personnel. | No.of establishments covered. | No. of establishments 'at risk' | Population Covered. | Population 'at risk' |
|---|---|---|---|---|---|
| 111 | 1 | 1 | 42 | 630 | 5450 |
| 1V | 6 | 4 | 45 | 2,780 | 9800 |
| V | 12 | 7 | 32 | 3,020 | 4910 |
| V1 | 102 | 50 | 166 | 54,580 | 86700 |
| V11 | 1 | 1 | 66 | 850 | 7280 |
| V111 | 8 | 5 | 76 | 3670 | 5770 |
| 1X | 0 | 0 | 14 | 0 | 760 |
| X | 2 | 2 | 8 | 830 | 2670 |
| X1 | 0 | 0 | 10 | 0 | 1320 |
| X11 | 6 | 6 | 68 | 3680 | 9690 |
| X111 | 15 | 9 | 139 | 3600 | 15,560 |
| X1V | 7 | 5 | 81 | 1530 | 6,630 |
| XV | 1 | 1 | 81 | 120 | 6,52o |
| X1V | 8 | 4 | 28 | 2060 | 3,390 |
| Total | 168 | 95 | 856 | 77350 | 166,450 |

Table No. 66.

Distribution of Nursing & Full Time First-Aid Staff by Size of Factory.

| No. of Nurses & First Aid Staff. | Factory Size-Grouping (No. of Employees) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 11-50 | 51-100 | 101-250 | 251-500 | 501-1000 | 1001-2000 | 2001-5000 | 5000+ | Total. |
| 1 | 1 | 3 | 18 | 24 | 14 | 3 | 3 | | 65 |
| 2 | 1 | 1 | | 1 | 8 | 3 | | | 15 |
| 3 | | | 1 | 6 | 1 | 2 | 2 | | 12 |
| 4 | | | | | | | | | |
| 5 | | | | | | | | | |
| 6 | | | | | | | 1 | | 1 |
| 7 | | | | | | | | | |
| 8+ | | | | | | | | 2 | 2 |
| Total | 2 | 4 | 19 | 31 | 23 | 8 | 6 | 2 | 95 |
| Total of Personell. | 3 | 5 | 21 | 44 | 33 | 15 | 15 | 33 | 169 |
| Total of Factories 'at risk' | 554 | 95 | 103 | 58 | 27 | 9 | 8 | 2 | 856 |
| Total of Population 'at risk' | 13,158 | 6,761 | 17, 344 | 20,792 | 19,581 | 11,551 | 24,000 | 12,667 | 132, 697. |

The largest total number of uncovered factories, some 130 establishments is to be found in Order XIII (Food, Drink, and Tobacco). The problem, in this industry is one of providing attention for a large number of very small factories, whose uncovered population is approximately 12,000. The same type of comment applies to Orders XIV and XV which between them have only 6 out of their 162 factories provided with full time attention. Overall the 168 nurses and full time auxiliaries care for the health of an estimated 77,350 or 46.5% of the total working population in the Survey Industries. These personnel work in 95 or 11.1% of the 856 Survey Factories.

When the situation is analysed by factory size groupings the true nature of the problem becomes clearer (Table 67). Only 7 out of the 46 factories which employ over 500 people are without some form of regular nursing or first aid facilities. The vast bulk of the 761 factories that do not have the services of a nurse or a first aid worker employ less than 501 workers. There are qualifications to be placed upon the comparison of population at risk with the population covered when analysed by factory size groupings. These are discussed further below. It is, therefore, only safe to deduce broad trends from the figures used. So much seems clear however. 49.0% of the total insured population works in factories employing less than 501 people. Some 58.5% of these people only are served by the personnel under consideration. In round terms this would mean that 47,550 of the total ~~166,490~~ 81,588 people, who work in these factories, do not have any attention of this type.

The combination of these two analyses shows where the focus of attention for the development of <u>quantity</u> of regular nursing attention should be, i.e. ~~namely~~ in the medium and small sized factories in the Engineering Industry, Food and Drink manufacture, Wood manufactures, chemicals, Paper and printing trades, Vehicles, and Metal Goods manufacture. The need in some of these segments of industry will be greater than others, depending upon the range and severity of hazards to be encountered in them. The need on this basis would seem to be greater in engineering than in printing, for example. Nevertheless some form of nursing skill should be available to all the manufacturing industries, and the broad need of a large range of its smaller units has been established. As only a few of these health personnel work on a part-time basis, it is assumed that Tables 65 and 66 give a reasonable indiction of the total time spent by these personnel in the different types and sizes of factory. Only if it had been possible to assess the severity and nature of the hazards to be encountered in differing industries would some more detailed statement about the adequacy of the coverage been justified.

TABLE 67

## Summary of Full Time Nursing and First Aid Personnel

## Coverage by Size Groupings

| Factory size Grouping. | No. of Full Time Personnel. | No. of Establishments covered | No. of Establishments "at risk" | No. of Population Covered. | Estimated No. of Population "at Risk". |
|---|---|---|---|---|---|
| 11-50 | 3 | 2 | 554 | 110 | 13,158 |
| 51-100 | 5 | 4 | 95 | 250 | 6,761 |
| 101-250 | 21 | 21 | 103 | 3,525 | 17,344 |
| 251-500 | 44 | 31 | 58 | 12,425 | 20,792 |
| 501-1000 | 32 | 23 | 27 | 16,440 | 19,581 |
| 1001-2000 | 18 | 9 | 9 | 12,200 | 11,551 |
| 2001-5000 | 13 | 5 | 8 | 19,300 | 24,000 |
| 5000+ | 32 | 2 | 2 | 13,100 | 12,667 |
| Total | 168 | 95 | 856 | 77,350 | 132,697 |

In Tables 67 and 69 the last two columns compare the population covered by Health Services and the estimated population at risk respectively. The figures for the population covered are made up from two sources. Firstly from information given, on this point, by senior members of firms who were met when factories were visited personally in the course of another aspect of the Survey (Chapter 17 ). If the factories concerned were not visited, which were those that only provided unsupervised auxiliaries to staff their Industrial Health Service, then the figures obtained from the Factory Register were used in lieu of other more accurate information. These latter figures were adjusted by the method explained in Chapter 10. Thus two roughly comparable types of population data were combined to give the aggregate populations covered. As far as the population-at-risk within size groupings is concerned, only the estimated population as derived by the method (Table 45) shown in Chapter 10 could be used. This accounts for the artefacts occuring in some size groupings in these tables, i.e. where the population covered is larger than the population at risk.

As stated in Chapter 10, the adjustment of the factory populations used for the Census of Industry allowed a true comparison to be made, within size-groupings, between the factories covered and those at risk.

## Adequacy of Medical Coverage.

For this analysis the number of hours of medical time given per week to factories is used rather than the number of doctors attending establishments. There are no establishments which have two doctors attending on a sessional basis, so that the second columns of Tables 68 and 69 show the number of individual sessions of medical time involved, as well as the number of factories covered. The distribution of the doctors themsleves throughout the range of industry has already been considered (Chapter 12 ).

Within the Industrial Orders, Order VI once again has the largest share of medical time (66.5% of the total of 201 hours per week). Apart from Orders IV and V, which have 12½ and 18½ hours per week devoted to them, none of the other Orders have more than 6½ hours per week given to them. Of the total of 48 establishments covered, 23 are in Order VI. The other Orders are very thinly provided for in this respect. A similar pattern exists to that shown for the nurses and auxiliaries, when the people covered by an I.M.O. are compared to those at risk. The largest absolute numbers uncovered lie in the same Orders, i.e. Engineering, Food and Drink, Wood Manufactures, Chemicals, Vehicles, and Paper and Printing. Clothing which is relatively well covered by nurses and auxiliaries,

TABLE 68

## Hours of Medical Time spent in each order in relation to those at risk.

| Order. | No.of Hrs/week medical time. | No. of Establishments covered. | No. of Establishments "at risk" | No. of Population Covered. | No. of Population "at risk". |
|---|---|---|---|---|---|
| 111 | 3 | 2 | 42 | 1240 | 5450 |
| 1V | 12½ | 6 | 45 | 1940 | 9800 |
| V | 18½ | 7 | 32 | 2750 | 4910 |
| V1 | 134 | 23 | 166 | 46,115 | 86700 |
| V11 | 3 | 1 | 66 | 80 | 7280 |
| V111 | 8 | 3 | 76 | 3,040 | 5770 |
| 1X | 0 | 0 | 14 | 0 | 760 |
| X | 0 | 0 | 8 | 0 | 2670 |
| X1 | 0 | 0 | 10 | 0 | 1320 |
| X11 | 4 | 1 | 68 | 750 | 9690 |
| X111 | 6 | 1 | 139 | 1000 | 15560 |
| X1V | 0 | 0 | 81 | 0 | 6630 |
| XV | 6 | 2 | 81 | 490 | 6520 |
| XV1 | 6½ | 2 | 28 | 1600 | 3390 |
| Total | 201½ | 48 | 856 | 59,005 | 166450 |

Table 69 Hours of Medical Time devoted to Factory Size groups in relation to numbers 'at risk'

| Size Group. | No. of Hrs/week of Medical Time. | No. of Factories covered. | No. of factories "at risk" | No. of Population covered. | Population "at risk" |
|---|---|---|---|---|---|
| 11-50 | 0 | 0 | 0 | 0 | 13,158. |
| 51-100 | 4 | 2 | 95 | 130 | 6,761. |
| 101-250 | 10½ | 8 | 103 | 1,400 | 17,344. |
| 251-500 | 23½ | 9 | 58 | 3,115 | 20,792. |
| 501-1000 | 40 | 14 | 27 | 10,630 | 19,581. |
| 1001-2000 | 21½ | 7 | 9 | 10,130 | 11,551. |
| 2001-5000 | 82 | 7 x | 9 | 28,000 | 31,500. |
| 5000 + | 20 | 1 x | 1 | 5,600 | 5,167. |
| Total | 201½ | 48 | 856 | 59,005 | 132,697. |

x Note. Establishments No. Vl 19 & 20 are included as one factory in ~~survey~~ census of Industry. Questionaire return gave them as two factories for IMO's time but as one for nurses time. Population "at risk" adjusted accordingly.

is also very deficient in attention from doctors.

Within factory size groups a familiar pattern appears. It is in the size range of under 501 employees where most people are without the attention of a medical officer, whilst at work. The position, however, is a little more complex when the number of people covered and at risk per hour of medical time are considered (Table 69A). It is seen that those people working in the smaller factories covered by the I.M.O.'s have actually a greater quantity of medical attention than those employed in larger establishments. This excludes the smallest size group which has no medical attention at all. The pattern when those exposed to risk are considered is identical to the one already demonstrated, namely the smaller the size group the less adequate is the care. This situation demands some explanation. The owners of the smaller factories who admit their responsibility to care for their employees' health, make provision in terms of medical time on a scale which is more lavish than that of the larger employers. It may be that the smaller factories cannot make adequate use, because of their size, of the minimum amount of medical time which their beneficent owners deem to be necessary for this purpose.

In Summary.

The quantity of nursing and auxiliary care provided for people at work is deficient in a large sector of industrial activity, and is particularly marked in those factories which employ less than 501 people. The exact need of differing types of industry, in this respect, can only be properly assessed by either a much closer study of the different type of industry, or by the operation of a pilot Industrial Health Service. A similar gap in the provision of medical care is shown in the same size groupings, and in roughly the same type of industries. The smaller factories which do recognise their responsibilities in this respect make even better provision of medical care than do the larger establishments. There may be some under employment of medical time in these smaller places.

All these comments apply only to the QUANTITY of medical, nursing and auxiliary care devoted to industry. The QUALITY of the service which is given in many of these places is the subject of Chapter 17 .

TABLE 69A.

## No. of persons covered and "at risk" per hour of Medical Time

## of ~~Unity~~ FACTORY Size Groupings

| Size Group | No. of persons covered per hour of Medical Time. | No. of persons "at risk" per hour of Medical Time. |
|---|---|---|
| 11-50 | - | - |
| 51-100 | 32.5 | 1,690.25 |
| 101-250 | 133.3 | 1651 |
| 251-500 | 132.1 | 884.7. |
| 501-1000 | 265.75 | 489.8. |
| 1001-2000 | 471.2 | 537.1. |
| 2001-5000 | 341.3 | 384.2. |
| 5000 | 280 | 258.3. |

# Chapter 14.

## Some Aspects of General Practice on Tyneside.

As has already been stated there are some 29 doctors engaged in the care of people at work in the Survey Area and 22 of them, all men, have the primary ~~primary~~ professional commitments of a general medical practice. Some attention has been given to them and much more is to come.

In order to assess the position of the industrial activities of these doctors in relation to their prior commitments, it was necessary that an overall picture of general practice in Tyneside should be obtained. This could then be used as a baseline for the assessment of their ability to carry this extra burden of work. In particular it was necessary to know such things as the distribution by size of the partnership groupings of general practioners (G.P.'s), the number of patients on their own National Health Service (N.H.S.) list, and that of their whole practice(i.e. partners as well), the area of their practice, their age and so on. Whilst this investigation was being undertaken it was also decided to attempt at the same time to assess the degree of co-operation that could be expected from local practioners if it proved possible, at some future date, to establish a comprehensive Industrial Health Service for the area. Furthermore, an estimate of the reservoir of that experience available amongst local doctors useful to such a service was to be attempted. These latter points needed clarification if any attempt was to be made to design such a Service for Tyneside. It was considered, as will be shortly explained (Chapter 18), that the medical staff for the Industrial Health Service (I.H.S.) which is to be outlined, should properly be recruited from amongst local general practioners. For this more important reason then, it was necessary to obtain the facts stated above.

The information that was needed fell into two categories. Firstly there was information relating to the pattern of present-day general practice in the locality. The following data was needed about each General Practioner:-

a).Age.
b).Name and home address.
c).Sex.
d).Address or addresses of main surgeries.
e).Number of patients on the N.H.S. list of the individual doctor.
f).The names of his partners.
g).The number of assistants he or his partnership employed.

Secondly, there was information relating to the planning of any future health service; this included the following points:-

i). Would the doctor co-operate in such a service.

ii). How much time would he be able to devote to this work.

iii). What reserve of individual experience had he of the medical subjects he would especially have to use in this work.

iv). Whether he would be able and willing to attend an instructional course covering some of the gaps in his experience and knowledge.

v). What conflict there would be, if any, between his present professional commitments (including those activities outside the strict bounds of his practice such as pensions appeals tribunals, medical boards, governmental appointments, etc.) and the new ones he was willing to undertake.

vi). Finally whether it was feasible to plan, upon the basis of all this information, an I.H.S. using, as its main medical staff G.P.'s, in preference to full time I.M.O.'s.

It has already been noted that the response of the local branches of the B.M.A., to an initial appeal for interest and co-operation, was a very limited and not encouraging one. Nevertheless, it was felt that further efforts should be made to use the channels of the main medical association in furthering this investigation. Failure to at least attempt this, would arouse suspicion and hostility.

Some of the information covered in the first heading above was obtainable from the lists of General Practioners issued by the Local Executive Councils. These provided information about name, sex, and home and surgery address(es) of all general practitioners, and their assistants in the Survey Area, as well as the names of the partnership groupings. The difficulties over the geographic differences between the types of administrative area were overcome in an arbitrary manner. All those G.P.'s who had a surgery address which was outside the boundary of the Survey Area were excluded from the investigation. Where the doctor had two surgery addresses, and one was inside and the other was outside the Area, he was included in the investigation as were all the patients on his list. Where one member of a partnership had a surgery address outside the area, and the other member(s) had addresses inside it, the former doctor and all his patients were excluded from the investigation. In this way, a basic list of the names and addresses and partnership structures of all the practices in the Survey Area was built up.

At this point the B.M.A. was approached again in an attempt to gain their co-operation in obtaining information on the other points still needing solution. Only two replies from the five branches in the Area were received to this formal request for assistance. The request took the form of a letter setting out the purpose and aims of the investigation, together with a specimen questionnaire seeking the information that was lacking. Of the two replies received, one was a mere formal acknowledgement that the investigation was in progress and would be supported. The other was a detailed and informative critique of the proposed questionnaire. After a prolonged discussion and modification, the final questionnaire took the shape shown in Appendix No. 10.

It had proved impossible to gain the backing of even this one branch of the Association for the attempt to obtain information on:-

a). the number of patients on the lists of individual doctors,

b). the number of patients on the lists of partnerships,

c). the age of the doctor.

Under the circumstances it was decided not to press these points, but to seek other sources of information regarding them.

It was decided to substitute the age of each doctor with the number of years since he first became registered as a medical practitioner. This information was obtainable from the Medical Register. Whilst this did not give data as accurate as the true age, it was felt that a guide would be given to the general age structure of local practitioners by this. The time was to be assessed from the 1st January, 1957.

The final and essential piece of information needed to complete this first part of the picture was the size of the N.H.S. patient-list of each practitioner. It was obvious from the attitude of B.M.A. representatives and other contacts with G.P.'s, that any direct attempt to obtain this information from the practitioners themselves would meet with failure. It would also arouse a great deal of hostility towards future operations. The local Executive Councils were approached on the matter. It proved impossible for them to disclose this information without instructions from the

Ministry of Health. It further appeared that the purpose of this investigation would not be considered a sufficiently important one to allow these instructions to be issued. It was, however, possible for the Survey to be given an anonymous list of practice groupings, with the individual and total practice-sizes attached to these. It was intimated that these groupings were arranged in an alphabetical manner, and that this corresponded to that used in the published lists of the Councils. It was found that in most cases this was correct, and thus it was relatively easy to identify each practice by its members and so ascertain the number of patients each doctor had on his list. It will be seen that in some instances, from personal knowledge of the area, it was suspected that there had been a mistake in the copying of the alphabetical presentation of the data and some practices proved impossible to identify with certainty. For this reason they have been described as "No. of patients unknown". For the most part they include doctors working single handed in the County Boroughs of Newcastle and Gateshead. There are 50 of these doctors. Although these constitute a considerable gap in the general picture, it was nevertheless considered that the investigation was worth continuing and its results were worth presenting.

The information it was hoped to obtain from the post questionnaire was as follows:-

a). Willingness to enter an Industrial Health Service of the type outlined in enclosed letter.

b). Past and present professional appointments, with a bearing on Industrial Health. These included such appointments as Ambulance Brigade and Association offices, and Insurance Appeals Tribunals, as well as past and present industrial appointments. There had been some dispute about the wording of the question relating to this. It had been suggested that a blunt request asking for information about present industrial appointments would not be acceptable. The inclusion of the other types of appointment was, in part, an attempt to get round this difficulty, and it allowed an estimate to be made of other extra commitments of the G.P.'s.

c). Experience of the G.P. in certain medical subjects relevant to his participation in an I.H.S. The subjects of dermatology, ophthalmology, orthopaedics, physical medicine, and medical statistics were specifically enquired about.

d). A question about experience in the working of the various insurance schemes was included. This served as a check upon the information gained under heading b). above.

e). The number of hours/week that could be spared for work in an eventual Industrial Health Service.

f). Willingness to attend instructional courses in medical and other subjects relevant to the work of an I.M.O.

It is appropriate to state here that it was realised only too well, that the results of this investigation would yield only a thinly sketched outline of the pattern of general practice on Tyneside. No attempt was being made to estimate the morbidity load thrown upon G.P.'s working in areas of widely different economic status. Similarly, no attempt was made to estimate the pattern of actual conduct of general practice in the area either. Thus there was to be no estimate made of the organising abilities, capabilities, standards of practice and care, and so on, of any of these practitioners. There was to be, in fact, no qualitative assessment of the pattern of General Practice in the Area. This was to be a purely quantitative sketch of the position which would serve two purposes; firstly, to allow a base line to be drawn against which the prior commitments of the G.P.'s already engaged in Industry could be gauged, secondly, to estimate if there was sufficient intrest in an I.H.S. staffed by G.P.'s and sufficient ~~available~~ professional time and experience available to allow this type of service to be planned in more detail.

The questionnaires, which related mostly to the planning aspect of the investigation, were sent to a one-in-three random sample of all G.P.'s. The names of all these doctors had previously been arranged in a strictly alphabetical order, and every third name was now abstracted and a questionnaire sent to each of these persons. It was decided to so limit the scope of this part of this investigation, as the response of the B.M.A. branches had been so poor. It was felt that to obtain a reasonable response to this postal survey many of these 118 doctors would have to be visited in person, many questionnaires, it was feared, would not be returned, and a visit would be needed to obtain a reply. Because of this anticipated difficulty it was decided to keep the numbers low, in order not to strain the limited resources of the Survey too severely.

The information obtained from all these sources was hand punched on to individual marginal-hole cards for analysis.

There were 352 doctors on the lists of the six Local Executive Councils on the 31st January, 1957. 25 were women and 327 men. It will, of course, be realised that by confining the investigation to those doctors on the lists of the

Executive Councils, the practitioners who practice outside the N.H.S. have been excluded. In fact, there are only three such doctors on Tyneside. One of whom (No.5) is part-time I.M.O. and the Appointed Factory Doctor (A.F.D.) for the C.B. of Newcastle. He works with a partner who also has an industrial appointment with a concern not included within the Survey Industries. The third doctor, a woman, is exclusively engaged upon a private obstetric practice froma private nursing home. The error caused through omitting these three practitioners is probably not a great one and will be ignored. These three doctors all practice in the north-east sector of the central conurbation complex, i.e. Gosforth, and the Jesmond and Heaton areas of Newcastle. The information relating to the number of patients on each included doctors' N.H.S. list, likewise ignores those patients which may attend the doctor privately, i.e. outside the scope of the N.H.S. practice.

The distribution of the number of years that have passed since the 352 G.P.'s under consideration were first registered as medical practitioners is shown in Table 70. 114 or 32·4% of these were registered 10-19 years ago, i.e. in the period 1938-47. Assuming that the usual age of first registration is between the ages of 23 and 25 years then 32·4% of local G.P.'s are between 33 and 44 years old. On a similar basis some 85 or 24·2% are between 23 and 34 years old, 71 or 20·2 % are between 43 and 54 years old, 67 or 19·1 % are between 53 and 64 years, and 15 or 4·3 % are over 63 years of age.

I. Partnership Sizes in General Practice.

It should be explained at this point that the 352 G.P.'s being considered do not include any of the unestablished assistants working in general practice. As these doctors, of whom there are 17, (all men) do not have any official status within the National Health Service (N.H.S.), nor any verifiable list of patients of their own, they are only considered in this investigation from certain viewpoints. Thus they are not included in the personal information relating to established G.P.'s such as sex, date of graduation, place of residence etc. They are only considered in such places where the work load of the practice as a whole is being considered. Thus they will be included where appropriate in the tabulation of the average sizes of doctors' patient lists, within partnerships. Trainee G.P.'s, because of their terms of service are not considered at all in this investigation. With this point established, consideration of the pattern of partnership groupings in local general practice can be proceeded with.

## Table No. 70.

### Number of Years since Registration - All G.P.'s.

| | 0-4 | 5-9 | 10-19 | 20-29 | 30-39 | 40+ | Total |
|---|---|---|---|---|---|---|---|
| Males | 14 | 63 | 105 | 67 | 62 | 16 | 326 |
| Females | 1 | 7 | 9 | 4 | 4 | 0 | 25 |
| | 15 | 70 | 114 | 71 | 66 | 16 | 352 |

This section takes into consideration the 17 assistants G.P.'s. Where a nominally single handed practitioner employs an assistant, the principal is placed in the category of those working with a single partner. The assistant is not included in the data presented.

The distribution of the total number of G.P.'s being considered, between the various size-groupings of partnerships, is shown on Table 71. Partnerships of two seem to be the most popular form of practice followed by single handed practice. Groups of three and four partners are less popular. It will be seen that well over half of the 17 assistants are employed by 10 partnerships of two established doctors. The largest practice groupings in the area are two practices of four established G.P.'s, each group having a single assistant.

There are two doctors, who practice in the four member practice size-group, whose area of practice lies on the periphery of the Survey Area. The other two members of this group practice from addresses over the boundary line of the Survey Area and have thus been excluded. (The average number of patients covered by each member of this practice is the figure used when the average number cared for by each doctor is discussed in a later section) The number of doctors excluded from consideration in the single handed group, for this reason, is large (45 out of 96) in relation to the total in the category. It would, therefore, be dangerous to draw any conclusions from the pattern of distribution of individual lists demonstrated in this grouping.

When the pattern of partnership size is compared with the date of graduation as it is in Table 71, some interesting facts emerge. The older G.P., i.e. those who registered over 30 years ago, tend to favour single handed practice more than any other form of combination. Some 33 or 40.3% of 82 of these practitioners work in this manner. A trend away from this begins with those doctors who registered 20-29 years ago. Here 35.2% work single handed whilst 24 or 35.0% of those in this "age" group work with a single partner. It is in those who first registered 10-19 4 years ago • under that the tendency to practice in partnerships rather than single handed becomes most prominent. 22.8% Only of the 10-19 group practice alone whilst 45 out of 114 or 39.5% work with a partner, and 22.9% work with two partners. A similar trend continues in those registering 5-9 years ago, where only 6.7% practice alone, and an even higher proportion, 15 out of 70 or 21.4% practice in groups of four doctors. Surprisingly, although the figures are small, it appears as if a grouping of four doctors in practice together is more favourable with the more elderly doctors, i.e. 30 year group, than with the middle aged ones. This, may of course, simply represent what began in earlier life as a smaller partnership of two doctors of similar ages taking on new, and much younger partners, to share the burden as their age increases.

## TABLE 71.

No. of Partners and/or Assistants - all Drs.

No. of years since Registration.

| Size of Partnership Group | 0 - 4 | 5 - 9 | 10 - 19 | 20- 29 | 30 - 39 | 40+ | Total. |
|---|---|---|---|---|---|---|---|
| Single Handed. | 1 | 11 | 26 | 25 | 25 | 8 | 96 |
| 2 | 5 | 28 | 45 | 24 | 19 | 4 | 125 |
| 3 | 6 | 13 | 27 | 13 | 10 | 2 | 71 |
| 4 | 3 | 15 | 15 | 7 | 11 | 1 | 52 |
| 5 | | 3 | 1 | 2 | 2 | | 8 |
| Total | 15 | 70 | 114 | 71 | 67 | 15 | 352 |

## II. Patient load borne by the G.P.'s and their Practices.

### A. Individual Lists.

In the first instance the number of ~~each~~ patients who are registered with each doctor upon the lists held by each Executive Council will be considered. This does not necessarily represent the actual number of patients that each doctor is responsible for. In many, if not most instances of partnership, the total work load is divided betweenthe partners in one manner or another. This section of the discussion will not, therefore, give any reliable estimate of the actual work-load of any of the G.P.'s, other than those in the group of single handed practitioners.

It will be noted that it was impossible to gain any information about the size of the practice lists of 50 doctors (Table 72), 45 of whom are single-handed, and of another five, who work with a single partner or assistant.

The number of doctors excluded from consideration in the single handed group, for this reason, is large (45 out of 96), in relation to the total in the category. It would, therefore, be dangerous to draw any conclusions from the pattern of distribution of individual lists demonstrated in this grouping.

Overall the size groups of partnerships several points of interest emerge. There are more doctors in the individual list size grouping 4,000 patients than in any other list-size group, other than the "unknowns". This is all the more interesting as the official maximum number of patients allowed on the individual list of a G.P. is 3,5000. The maximum average number allowed to each member of a partnership is about 3,500. The G.P. with a personal list over the permitted maximum often has it brought below this figure when it is averaged out with the lists of his other partners which contain below 3,500 patients. This artificial ceiling to the number of patients a doctor may care for probably account for the fact that there are 36 doctors, out of a total of 302 under consideration, who have lists containing fewer than 500 patients. 31 of these doctors qualified under 10 years ago (Table 73), and as seen, this "age" group favour practising in the larger partnership groupings (Table 71). There are altogether 164 G.P.'s with lists containing over 2,500 patients, and 138 with lists under this size.

When the distribution of size-of-list within size of partnership (Table 72) is considered further points emerge. 16 out of the 60 doctors who work in partnerships of 4 and 5 have individual lists containing over 3,500 patients, whilst another 8 in the same partnership size, have under 500

Table 72.

Total Number of patients on individual list by Size of Partnership.

ALL Doctors.

| No. in partnership. | No. of Patients. 0-499 | 500-999 | 1,000-1499 | 1,500-1,999 | 2,000-2499 | 2500-2999 | 3000-3999 | 3500-3999 | 4000+ | Unknown | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Single-handed. | 3 | 9 | 6 | 7 | 10 | 5 | 8 | 2 | 1 | 45 | 96 |
| 2 | 20 | 7 | 13 | 9 | 8 | 12 | 14 | 17 | 20 | 5 | 125 |
| 3 | 5 | 4 | 2 | 10 | 5 | 9 | 10 | 10 | 16 | 0 | 71 |
| 4 | 8 | 2 | 1 | 5 | 4 | 9 | 9 | 8 | 6 | 0 | 52 |
| 5 | | | | | | 3 | 2 | 1 | 2 | | 8 |
| Total. | 36 | 22 | 22 | 31 | 27 | 38 | 43 | 38 | 45 | 50 | 352. |

TABLE 73 Total No. of Patients and Personnel list by Date of Registration - ALL DOCTORS.

| Years since Registration | List Size | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0-499 | 500-999 | 1000-1499 | 1500-1999 | 2000-2499 | 2500-2999 | 3000-3499 | 3500-3999 | 4000+ | Unknown | Total |
| 0-4 | 8 | 5 | | 1 | | | 1 | | | | 15 |
| 5-9 | 23 | 5 | 5 | 10 | 4 | 5 | 3 | 5 | 3 | 7 | 70 |
| 10-19 | 3 | 4 | 12 | 9 | 10 | 18 | 22 | 8 | 13 | 15 | 114 |
| 20-29 | | 1 | | 3 | 8 | 6 | 11 | 11 | 15 | 16 | 71 |
| 30-39 | 1 | 3 | 3 | 5 | 5 | 8 | 5 | 12 | 13 | 12 | 67 |
| 40+ | 1 | 4 | 2 | 3 | | 1 | 1 | 2 | 1 | | 15 |
| Total | 36 | 22 | 22 | 31 | 27 | 38 | 43 | 38 | 45 | 50 | 352 |

patients on their own lists. This would seem to bear out the statement made in the above paragraph about the averaging out of combined lists to a level below the official maximum. A similar but less pronounced picture is seen in the other partnership sizes.

B. Average list sizes within partnerships.

This mode of the investigation is used in an attempt to obtain a more realistic picture of the pattern of the work-load in general practices. It is admitted that an unknown proportion of G.P.'s in partnership strictly care for only the patients upon their own lists. They will not attend, except in cases of emergency, the patients who are registered with their partners. This type of arrangement is thought to be far from common, and although it is known to exist in one partnership of four doctors on Tyneside, no other instance of it has come to light. This specific point was not investigated in detail, but, in conversation, with all those G.P.'s engaged in local industry, and with many others, no other instance of this mode of practice has been discovered. Thus it will henceforth be assumed that the total number of patients cared for by any one practice is divided equally between all its members who then, theoretically, bear equal shares of the total work. This, of course, is a facile assumption. Some practices are so organised that certain members see all of certain classes of patients and conditions, such as pregnant women and children, to the exclusion of the other members. More of the practices have their work divided upon a geographic basis, so that some members have areas with higher morbidity rates than others. Again some doctors, although caring for the same amount of morbidity in the same number of patients as their partners, visit their patients more frequently, and spend more time in their care. This does not necessarily imply, of course, that these practitioners give these patients a better standard of care. Finally, there is a tendency to arrange the work, of multi-member practices, so that the more senior members of the group are relieved of the more onerous duties, such as night calls. Despite all these qualifications it is still contended, that the only feasible method open to this survey to assess, with the resources and data at its command, the work-load thrown upon each G.P. was to estimate the average number of patients he cares for within his practice. The results are tabulated on Table 74. The distribution of average list sizes resembles the normal biological frequency distribution curve. The two list-size groups 2,000-2,499 patients, and 2,500-2,999 patients are about equal in numbers and together contain just over one-half (162) of the 302 doctors being considered. Thereafter the numbers in each list-size group fall away to each extreme of the range. It falls more rapidly towards the upper ranges as the artificial

Table 74 Average List Size by Partnership groupings.

| No. in Partnership. | 0-499 | 500-999 | 1000-1499 | 1500-1999 | 2000-2499 | 2500-2999 | 3000-3499 | 3500-3999 | 4000+ | Unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Single-handed | 3 | 9 | 6 | 7 | 10 | 5 | 8 | 3 | 1 | 45 | 96 |
| 2 | 0 | 6 | 11 | 21 | 36 | 22 | 16 | 8 | 0 | 5 | 125 |
| 3 | 0 | 0 | 5 | 7 | 17 | 36 | 6 | 0 | 0 | 0 | 71 |
| 4 | 0 | 0 | 4 | 8 | 12 | 20 | 8 | 0 | 0 | | 52 |
| 5 | | | | | 4 | | 4 | | | | 8 |
| Total | 3 | 15 | 26 | 43 | 79 | 83 | 42 | 10 | 1 | 50 | 352 |

ceiling of 3,500 patients is reached more quickly in this direction. It is surprising, however, to find that there are still 8 G.P.'s with average list sizes over this maximum limit, as well as 3 single handed practices ~~partnerships~~. Within the partnership groupings there are further interesting variations. The three and four man (Table 74) practice tend to be grouped into the central list-size categories with a marked tendency towards the larger average list of 2,500 - 2,999 patients. This latter feature is ~~being~~ most noticeable in the three-doctor practices. The trend is for the central congregation of list sizes to become less marked with decreasing partnership size. Thus when the two doctors practices are considered the proportion of G.P.'s in the central list-size ranges is much lower, and there are proportionately more of them in the more extreme list-size ranges.

Time since registration has little significance in this matter,(Table 75).

B. Total Patient List Size of Practices.

It would be reasonable to assume, without any further investigation that the larger the number of doctors in practice together, the larger would be the aggregate number of patients that are cared for by them. That this basic supposition is true is shown by Table 76. What is more interesting is the degree of overlap in the "boundary" list-sizes between one partnership size and the next. Thus the range of list-sizes for two-doctor practices is from 1,000 to 7,999 patients, and that for three-doctor practices from 3,000 to 9,999 patients.

Over all the partnership sizes it is found that some list-sizes are more "popular" than others. Thus two peaks occur in the distribution. A blunted one in the lower ranges which shows thirty three doctors working in practices with a total list between 3,000 and 3,999, and another forty-four doctors whose total list size is between 4,000 and 4,999 patients. The former number is made up of about equal numbers of single handed practices and twin partnerships, and the latter of twice as many two-man practices as single handed ones. The other peak in total-list size distribution occurs in the range 7,000 - 7,999 patients. Almost two-thirds of these 41 doctors work in three-man practices. It would appear therefore, that some totals of patients to be cared for, are more "popular" than are others. The lower list sizes are obviously unpopular because of the relatively poor financial rewards they offer. This does not explain why there is a popularity of certain totals which are below the permitted maximum. This suggests two mechanisms are operative. One, that the doctors themselves are content with numbers fewer than the maximum permitted, and two, that the overall number of doctors is high enough to allow a degree of competition to exist between practices.

Table No. 75.

Average Practice Size by Date of Registration (All Doctors).

| Years since registration. | List Sizes. | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0-499 | 500-999 | 1000-1499 | 1500-1999 | 2000-2499 | 2500-2999 | 3000-3499 | 3500-3999 | 4000+ | Unknown | Total. |
| 0-4 | 1 | 1 | 4 | 1 | 4 | 4 | | | | | 15 |
| 5-9 | | 2 | 6 | 13 | 18 | 18 | 5 | 1 | | 7 | 70 |
| 10-19 | 1 | 4 | 5 | 10 | 25 | 30 | 21 | 3 | | 15 | 114 |
| 20-29 | | | 4 | 5 | 20 | 14 | 10 | 2 | | 16 | 71 |
| 30-39 | | 3 | 6 | 10 | 11 | 15 | 6 | 3 | 1 | 12 | 67 |
| 40+ | 1 | 5 | 1 | 4 | 1 | 2 | | 1 | | | 15 |
| Total | 3 | 15 | 26 | 43 | 79 | 83 | 42 | 10 | 1 | 50 | 352 |

Table No. 76.

Total Number of Joint Practice List by Size of Partnership - All Doctors.

| No. in Partnership. | 0-999 | 1000-1999 | 2000-2999 | 3000-3999 | 4000-4999 | 5000-5999 | 6000-6999 | 7000-7999 | 8000-8999 | 9000-9999 | 10000-10999 | 11000-11999 | 12000 + | Unkown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| S.H. | 12 | 13 | 15 | 10 | 1 | | | | | | | | | 45 | 96 |
| 2 | 0 | 6 | 11 | 21 | 36 | 22 | 16 | 8 | | | | | | 5 | 125 |
| 3 | | | | 2 | 3 | 7 | 8 | 25 | 20 | 6 | | | | | 71 |
| 4 | | | | | 4 | | | 8 | | 12 | 16 | 4 | 8 | | 52 |
| 5 | | | | | | | | | | 4 | | | 4 | | 8 |
| Total. | 12 | 19 | 26 | 33 | 44 | 29 | 24 | 41 | 20 | 22 | 16 | 4 | 12 | 50 | 352 |

This follows from the total number of patients being relatively too small to allow all practices to achieve the maximum number permitted.

The analysis of total practice lists by "age" does not reveal anything of importance (Table 77).

In Summary.

The patterns of the work load of local G.P.'s as estimated, when based upon the size of his individual and average patient list, vary considerably. The more extreme picture shown when only individual lists are concerned becomes a more reasonable one when the average list size of each doctor in a partnership is considered. The effect of the 17 assistants, and the younger doctors in partnerships in this respect is important. They appear to be responsible for reducing the very high individual lists, of some of those doctors in partnerships of three and over, to more reasonable averages. Over two thirds of the doctors in partnerships of three and more, care for an average of 2,000 - 2,999 patients. There is a much wider variation from this position when partnerships of two are considered.

## III. Patient Load borne in relation to Age of G.P.

It has already been explained that the time since the doctor was first registered had to be used, as an index of his age, rather than his true age. It is not pretended that this is as satisfactory as using the known age itself, but, under the circumstances, it was decided that this was the best guide to age which could be obtained. Assuming that most people are registered between the ages of 23 and 25 years, an indirect estimate of true age can be made. However, an unknown proportion of people take up medicine in later life, and thus this supposition in their cases, will be wildly inaccurate; this is particularly so for those entering practice some 5-8 years after World War II.

### a). Distribution of personal list of patients by time since registration.

The general outline of the distribution of time since graduation of the 352 doctors in the investigation has been given on page 139. When the personal list size of these doctors by age is examined a picture, which could have been arrived at on empirical grounds, becomes apparent (Table 73). The shorter the time since a doctor first registered, the smaller is the number of patients he has been able to attract into his personal care. Thus some 46 out of 78 doctors who graduated under 10 years ago, have less than 1,500 patients on their personal practice lists. There are only 19 out of 99 doctors with as few patients as this in the next "age" group 10-19 years. This discrepancy of list size is most marked between those registered under ten years ago, and those registered 20-29 years

Table No.77.

Total Number of Patients on Partnership List by years since registration (ALL Doctors).

| Years since registration. | 0-999 | 1000-1999 | 2000-2999 | 3000-3999 | 4000-4999 | 5000-5999 | 6000-6999 | 7000 7999 | 8000-8999 | 9000-9999 | 10000-10999 | 11000-11999 | 12000 + | Unknown. | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0-4 | 1 | 1 | 1 | 1 | 5 | | 1 | 1 | 2 | 1 | | 1 | | | 15 |
| 5-9 | 1 | 2 | 5 | 8 | 15 | 5 | 1 | 10 | 2 | 2 | 8 | 1 | 3 | 7 | 70 |
| 10-19 | 2 | 6 | 6 | 9 | 12 | 11 | 13 | 15 | 8 | 9 | 3 | 1 | 4 | 15 | 14 |
| 20-29 | | 2 | 7 | 6 | 9 | 4 | 6 | 10 | 2 | 4 | 2 | 1 | 2 | 16 | 71 |
| 30-39 | 3 | 4 | 7 | 7 | 3 | 9 | 3 | 4 | 4 | 5 | 3 | 0 | 3 | 12 | 67 |
| 40+ | 5 | 4 | | 2 | | | | 1 | 2 | 1 | | | | | 15 |
| Total | 12 | 19 | 26 | 33 | 44 | 29 | 24 | 41 | 20 | 22 | 16 | 4 | 12 | 50 | 352 |

ago. Only one of these latter doctors has less than 1,500 patients, out of the total of 55. Thereafter with increasing age the number of patients attributed to the personal list of a doctor tends to show a wider distribution across the range of list-size groups. Nevertheless 28 out of the 70 doctors who graduated over 30 years ago, still have over 3,500 patients on their personal lists.

b). <u>Distribution of Average patient list-size in relation to the date since registration.</u>

The distribution of doctors by time since registration and by average size of list have already both been mentioned separately. When the two sets of data are combined, the following facts emerge (Table 75).

The younger doctors, i.e. those who first registered under 10 years ago, are more largely concentrated in lower groups of list-sizes than are doctors who registered 10-19 and 20-29 years ago. Thus 28 out of 85 of those who registered under ten years ago are located in the list-size ranges 2,500 + patients, whilst 54 out of 114 in the 10.-19 years group are located in the same list size groups. For the older doctors the scatter between the size groupings is much more pronounced and no definite pattern of distribution is discernable here. This pattern is explicable in several ways. The younger doctors have already been shown to have much smaller <u>personal</u> lists than their more senior colleagues; furthermore they tend to practice more often in partnerships than do these older doctors. Under these circumstances they would appear to be going into partnership with persons who have a small or average sized personal list themselves, so that the resulting practice average as a whole is low. It would seem that the younger men are entering partnerships with either their own contemporaries or with men very much their senior, particularly with those who registered over thirty years before them, and whose personal lists likewise are small.

c). <u>Total practice size related to time since registration.</u>

It has already been noted that some total list-sizes are more "popular" than are others. With increasing "age" of the G.P. it is found that the distribution of doctors throughout the full range of list size groups becomes fairly even (Table 77). It shows a regular ascent and descent to and from the "favourite" list sizes. This latter feature is particularly well marked in the "age" groups 10-19 and 20-29 years since registration. This feature is absent when the distribution through the list-size range is studied amongst those who registered 5-9 years ago. In this "age" group there are very sharp peaks of total practice sizes of 4,000-4,999; 7,000-7,999 and 10,000-10,999 patients. This feature can be explained as follows; a large proportion of the young practitioners have very small personal lists and a large proportion of them are in partnerships. The contribution of the small personal list of the young doctor to the total practice list is thus relatively small. These peaks in the list size distribution probably represent a number of practices which have recently taken in a young partner whose personal list is of nominal size. They represent, in fact, the total of patients on the lists of the other partners, almost to the exclusion of the relatively small number contributed by the younger man.

Summary.

The older practitioners tend to have much higher personal lists than do the younger doctors. There is not as much discrepancy, in this respect, between those doctors who registered between 20-29 years ago and 10-19 years ago, as between the 0-9 and 10-19 years "age" group. Either conditions of practice, as judged by this method have become more difficult since these younger men registered, or there is some situation existing that is not revealed by this investigation. This fact seems to allow a man to expand rapidly 10 to 19 years after graduation the number of patients he personally attracts. Those doctors who attain very high numbers of patients on their personal lists, i.e. over 3,500, seem to retain them until they reach the 30-39 year period after graduation.

When average size of lists is considered, the younger man has a smaller list, on the whole, than his older colleague, (apart from those who registered over 40 years ago and whose numbers are by comparison small). Here again, it is seen that the man who registered 10-19 years ago has a comparably better position vis-a-vis his immediately senior colleagues, than his immediate juniors have compared to himself. Over all ages there is a more compact distribution of average list, than there is of personal ones. A similar pattern was noted when the list-size distribution was related to partnership sizes.

The total list size reveals an interesting situation amongst the younger practitioners. Some total list sizes throughout all age groupings and partnership-sizes have been seen to be more frequent than others. This "popularity" is even more marked amongst the younger doctors. A reason for this is suggested. The numbers involved are, of course, small, but the occurrence of this pattern is so marked that it is probably a genuine feature.

IV. Area of Practice.

The areas used in this geographic analysis correspond to the sub-divisions of the Census Conurbation Area and have been described on page table N. 4 map N. 3. (The peripheral areas not within the conurbation and yet within the Survey Area are grouped together in one single column in Table 80 ). The number of practitioners living in, and the population of, each sub area is shown on table 78 . The population figures of the sub areas are those given in the 1951 Census reports for the Conurbation, and for the Counties of Durham and Northumberland.

The fact that a G.P. has his main surgery in a sub-area does not necessarily mean, of course, that all his ptients live within that same sub-division. It could be expected however, that most practices would have their surgery accommodation situated in a location that was centrally placed for the majority of their patients. Where a doctor practices from his private residence, and not from a separate surgery, building, there is a tendency, in the more overcrowded parts of the Region, for the G.P. to live on the periphery of such areas. In such instances his surgery-cum-residence is probably not near the centre of his practice. This may result in him actually living over the border from the sub division where most of his patients live. Where there is a lock-up, or separate practice, surgery, the location of this tends to be in the centre of the area where the bulk of the patients live. There is another ~~tendency~~ for different members of a practice to operate from separate surgeries at widely separated addresses. Such practices are, in the majority of instances, new partnerships, one or more members of which live in an area of new housing development, whilst the other members continue to care for people living in the older parts of the town.

Where all the members of the partnership obviously practice from one central surgery then they were all allotted to the sub-area in which this lies, despite the fact that they may have widely differing home addresses. Where separate members have differing addresses, and there is no address common to any member of the practice, then they were classified under these separate addresses. Where, say, two members have inter alia the same address and the third a completely different one, they were classified separately, according to these two different addresses. All the addressses used were those given in the lists of the Local Executive Councils on the 31st of January, 1957. When the addresses of two surgeries of the same practice were given on these lists, the first to be listed was arbitrarily chosen as the main surgery.

(i). <u>General.</u> It would appear from Table that, on an arithmetic basis, there is gross discrepancy between the medical provision made for the different sub-areas (Table 78). Thus Division I is remarkably well off with an average of patients/G.P., whilst area IIIC is appallingly badly served by general practitioners. The figures for IIIC are obviously an artefact when the data

## Table No. 78.

## Number of G.P.'s practising in each sub-Area together with their population.

| Sub Area. | Number of G.P.'s. | Population. | Number of population/ G.P. |
|---|---|---|---|
| I | 9 | 10,363 | 1,151 |
| IIA | 101 | 180,412 | 1,786 |
| IIB | 29 | 41,423 | 1,428 |
| IIC | 45 | 97,527 | 2,167 |
| IID | 56 | 87,639 | 1,565 |
| IIIA | 82 | 281,533 | 3,433 |
| IIIB | 5 | 11,497 | 2,299 |
| IIIC | 11 | 125,139 | 11,375 |
| Blaydon and other peripheral areas. | 14 | 78,150 | 5,714 |
| Total. | 352 | 914,241. | ~~[illegible]~~ 2,658 |

relating to the average list size is recalled. Area IIIC contains almost exclusively new Council Housing of the C.Bs. of South Shields, Gateshead, & of Felling, Jarrow and Hebburn. There has obviously been little provision made to attract G.P.'s to reside, or set up main surgeries in these areas. They therefore live in the adjoining residential parts of divisions IIC and IID, which are seen to be relatively well provided with doctors.

When the North Bank and the South Bank sub-divisions are summated and considered separately the position is somewhat clearer(Table 79). (It can be stated with confidence, from the information obtained about patient lists, which was received broken down in this manner, that only some 500 patients altogether are attended by doctors who live on opposite banks of the Tyne. All these patients live in and around the Newcastle-Gateshead complex. The peripheral areas are ignored in this analysis).

Table 79.

| Division. | No. of Dr.'s. | Population. | Pop/G.P. |
|---|---|---|---|
| North Bank | 221 | 513,731. | 2,325. |
| South Bank | 117 | 321,802. | 2,750. |

Thus whilst there slightly more members of the population per general practitioner along the South Bank there is no great discrepancy between the two halves of the area. Nevertheless, there is considerable apparent maldistribution of doctors within the two halves, and this is most grossly marked in the newer areas of building in the South. These, as have already been noted are mostly areas of new local authority building. The larger proportion, 240 of 338, of the doctors still live in the older divisions I and II, despite the almost equal division of the population between the older (I and II) and newer divisions (III).

(ii). Personal Patient list-size distribution in relation to geographic area of practice.

When the patients on the personal lists of a doctor are examined in relation to the Census areas in which these doctors practice, the following patterns are evident (Table 80). Area IIA has a list-size distribution resembling that of Tyneside as a whole. The numbers are too small in areas I, IIB, IIIB, IIIC and Blaydon etc. to call for comment. Areas IID and IIC are unduly weighted with the larger personal lists, whilst area IIIA has a disproportionately large share of the smaller list-sizes.

This probably is related to the Social class distribution of the general Tyneside population. Areas IIA, and IIIA, have a larger proportion of Social Classes I and II living in them than have

## Table No. 80.

### Area of Practice and Personal List-size - All Doctors.

| No. of Patients on Personal List. | Area. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | I | IIA | IIB | IIC | IID | IIIA | IIIB | IIIC | Blaydon etc. | Total. |
| 0-499 | 1 | 13 | 3 | 4 | 3 | 11 | 1 | | | 36 |
| 500-999 | 1 | 7 | 3 | 1 | 2 | 6 | | | 2 | 22 |
| 1,000-1,499 | | 5 | 2 | 2 | 3 | 8 | | 2 | | 22 |
| 1,500-1,999 | 1 | 10 | 3 | 0 | 4 | 8 | | 2 | 3 | 31 |
| 2,000-2,499 | 1 | 8 | 2 | 1 | 9 | 6 | | | | 27 |
| 2,500-2,999 | 1 | 13 | 1 | 7 | 8 | 4 | 1 | 2 | 1 | 38 |
| 3,000-3,499 | 1 | 7 | 4 | 8 | 9 | 11 | 1 | | 2 | 43 |
| 3,500-3,999 | | 11 | 4 | 4 | 8 | 10 | | | 1 | 38 |
| 4000+ | | 8 | 7 | 8 | 10 | 8 | 2 | 1 | 1 | 45 |
| Unknown | 3 | 20 | 0 | 10 | | 9 | | 4 | 4 | 50 |
| Total | 9 | 102 | 29 | 45 | 56 | 81 | 5 | 11 | 14 | 352 |

any of the other areas of Tyneside. Doctors presumably prefer to practice with smaller lists in these congenial localities than with larger lists in less congenial districts. Conversely Areas IIC and IID contain the older, poorer districts for housing of Gateshead and South Shields respectively, and this makes them less favoured as places to practice. It may also reflect the practice of one, usually the newer and younger, member of a partnership residing on the new housing estate, some distance from the surgery of his senior partner who works in the older area (II).

(iii) Average patient list-size distribution in relation to geographic areas.

The above pattern is also reflected in this analysis (Table 81). There is, however, a smaller range of distribution of the list-size groupings within all the sub-areas. This reflects the averaging out of combined lists as noted elsewhere. It is still evident that the average size of patient lists is higher in areas IIB, IIC, and IID than in areas IIA and IIIA.

V. Partnership groupings in relation to area of practice.

The size of partnerships by area of practice within the standard subdivisions is shown on Table 82. Although the numbers in any one subdivision of the table are small there would appear to be a "normal" distribution throughout all the sub-divisions for singlehanded and two-doctor practices. Three-doctor practices are commoner in sub-divisions IIB and IID, that is in the older areas to the extreme east on both banks of the Tyne. Three-doctor practices are not favoured in the newer north-bank communities of division IIIA. In area IIIA there would appear to be a true preference for four-doctor practices.

## Postal Enquiry amongst General Practitioners.

Information obtained from the questionnaire sent to a random sample of one in three general practitioners is next considered.

The information sought from these questionnaires has already been outlined on page . A total of 118 names were selected from the alphabetical list of practitioners, and the questionnaire plus a covering letter were sent to each. The letter briefly outlined the purpose of this part of the Survey, together with an outline of the type of I.H.S. that was being considered.

The results of this postal survey are shown on the next page.

Table No. 81.

Area of Practice and Average List Size of all Doctors.

| Average No. on List. | I | IIA | IIB | IIC | IID | IIIA | IIIB | IIIC | Blaydon etc. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|
| 0-499 | | 2 | 1 | 0 | | | | | | 3 |
| 500-999 | 2 | 6 | 1 | 1 | | 5 | | | | 15 |
| 1000-1499 | | 10 | 2 | 2 | 1 | 10 | | 1 | | 26 |
| 1500-1999 | 1 | 13 | 2 | 2 | 7 | 16 | | 1 | 1 | 43 |
| 2000-2499 | 1 | 14 | 8 | 8 | 12 | 21 | | | 5 | 79 |
| 2500-2999 | | 18 | 8 | 9 | 26 | 10 | 5 | 3 | 4 | 83 |
| 3000-3499 | 2 | 9 | 5 | 9 | 5 | 10 | | 2 | | 42 |
| 3500-3999 | | | 2 | 4 | 4 | | | | | 10 |
| 4000+ | | | | | 1 | | | | | 1 |
| Unknown | 3 | 20 | | 10 | | 9 | | 4 | 4 | 50 |
| Total. | 9 | 102 | 29 | 45 | 56 | 81 | 5 | 11 | 14 | 352 |

Table 82.

Partnership Size by Area of Main Surgery - All Doctors.

| No. in Partnership. | I | IIA | IIB | IIC | IID | IIIA | IIIB | IIIC | Blaydon etc. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|
| Single handed | 3 | 27 | 8 | 12 | 17 | 22 | 0 | 5 | 2 | 96 |
| 2 | 6 | 33 | 8 | 16 | 22 | 30 | 1 | 6 | 3 | 125 |
| 3 | 0 | 25 | 11 | 9 | 17 | 6 | 0 | 0 | 3 | 71 |
| 4 | 0 | 13 | 2 | 4 | 0 | 23 | 4 | 0 | 6* | 52 |
| 5 | | 4 | | 4 | | | | | | 8 |
| Total | 9 | 102 | 29 | 45 | 56 | 81 | 5 | 11 | 14 | 352 |

* with two partners practicing from surgery outside area.

Number of general practioners in investigation: 352 (25 women:327 men).

Number of questionnaires sent out: 118 (10 women:108 men).

Number of questionnaires returned: 108 (10 women: 98 men).

Reasons for non return of questionnaire:-

| | |
|---|---|
| Retired from practice | 1. |
| Deceased | 1. |
| Left district. | 1. |
| Returned "not known" | 1. |
| No reason given. | 6. |

Of the six doctors who did not give any reason for not returning the questionnaire, all were personally contacted both by letter, and by telephone and all promised to reply. After an interval of six weeks none of them did so. Despite attempts to fix personal interviews with all of them it proved impossible to obtain any positive reaction to the questionnaire from any of them.

For purposes of checking the validity of this sample the time of registration of the "sample" doctors was compared with the overall distribution of this factor throughout the whole number of G.P.'s on Tyneside (Table 83). It is seen that the sample is slightly biased in favour of doctors in the 5-9 and 10-19 years "age" group. Nevertheless it is considered that this sample is sufficiently valid to allow generalisation to be drawn from it for planning purposes.

I. <u>Reaction to proposals to establish an I.H.S.</u>

Of the 118 doctors approached 65 or 55.1% declared themselves to be willing to work for an I.H.S. of the type outlined in the covering letter. This letter briefly referred to the co-operative type of scheme ~~already~~ outlined (14 p. 20) which would draw upon local G.P.'s for its medical staff. These doctors would be engaged under a contract of service the terms of which would be identical to thosesuggested by the B.M.A. as suitable for this type of work. The degree of interest shown in these proposals was in marked contrast to the indifference shown to the original approaches made to their elected representatives. It is admitted however, that the I.H.S. was only briefly outlined in the letter. When the point was reached where it had to be detailed in a more concrete manner, it is possible that many of those who were initially willing to co-operate would no longer be willing to do so. The ten questionnaires which went unanswered were included within the category of those not in favour of participating in

Table 83.

Date of Registration of Sample.

| | Years since Registration. | | | | | | |
|---|---|---|---|---|---|---|---|
| | 0-4 | 5-9 | 10-19 | 20-29 | 30-39 | 40+ | Total. |
| Males | 4 | 25 | 39 | 19 | 16 | 5 | 108 |
| Females | 1 | 2 | 4 | 2 | 1 | 0 | 10 |
| Total | 5 | 27 | 43 | 21 | 17 | 5 | 118 |
| "Ideal" | 5 | 23 | 38 | 24 | 22 | 6 | 118 |

this service. The six men who did not reply at all were taken to be uninterested in the proposals and thus presumed to be unwilling to co-operate. The remaining four reasons for non-return of the questionnaires were all occurences which it seemed legitimate to include in the "refused" category.

On the basis of the replies women seemed to be as eqully in favour of participating as were men.

| | |
|---|---|
| Number willing to participate | 65 (60 men: 5 women). |
| Number unwilling " " | 53 (48 men: 5 women). |

II. Willingness to participate in relation to age.

"Age" in this instance is judged as elsewhere, upon the basis of number of years since the doctor registered as a medical practitioner. Amongst the participators it will be seen from Tables 84 and 85 that only one quarter registered over 20 years ago, whilst about half of those unwilling to participate registered this long ago. It would appear that the older doctors felt themselves more unable to participate than did the younger ones. The reason for this is probably fairly simple, namely, an unwillingness, with increasing age, to extend the scope of one's activities. It may also be that the older doctors were less convinced of the need for such a venture. The younger ones may have been more influenced during their training by the concepts of preventive medicine.

III. Total and Average list-size in relation to willingness to participate.

The comparison of the total list sizes for two categories of doctor is given on Table 84 and Table 85. The doctors with lists under 2,000 patients would seem to be more willing to participate in an I.H.S. than those with lists between 2,000 and 3,499 patients. Surprisingly some 16 of the 20 doctors with lists over 3,500 patients were also willing to participate.

When the average patient list-size of participators and non-participators is considered, however, there would seem to be little difference between the two categories (Tables 86 and 87). This, combined with the above analysis by "age", suggests that it is the young doctor with the small personal list working with partners who have larger-than-average lists, who is most likely to be attracted by such a service.

IV. Partnership-size in relation to willingness to participate.

The distribution of the partnership-size pattern for those willing to participate in this type of I.H.S. does not seem to differ greatly from the same pattern for the non-participating doctors(Table 88). There is a suggestion that those doctors

Table No. 84

## Non-Participating General Practitioners, Date of Registration related to Personal List Size.

LIST SIZE

| Date of Registration (years ago) | 0-499 | 500-999 | 1000-1499 | 1500-1999 | 2000-2499 | 2500-2999 | 3000-3499 | 3500-3999 | 4000+ | Unknown | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0-4 | 1 | | | | | | 1 | | | | 2 |
| 5-9 | 1 | 1 | 1 | | 1 | 1 | 1 | | 1 | 1 | 8 |
| 10-19 | | | 1 | 1 | 2 | 4 | 5 | 1 | 2 | 1 | 17 |
| 20-29 | | | | | 1 | 1 | 1 | 3 | 3 | 2 | 11 |
| 30-39 | | 2 | | 1 | 2 | 2 | 2 | | 2 | 1 | 12 |
| 40+ | | 1 | | 1 | | | 1 | | | | 3 |
| Total | 2 | 4 | 2 | 3 | 6 | 8 | 11 | 4 | 8 | 5 | 53 |

Table No. 85

**Participating General Practitioners**
**Date of Registration related to Personal List Size.**

LIST SIZE

| Date of Registration (years ago) | 0-499 | 500-999 | 1000-1499 | 1500-1999 | 200-2499 | 2500-2999 | 300-3499 | 3500-3999 | 4000+ | Unknown. | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0-4 | 2 | 1 | | | | | | | | | 3 |
| 5-9 | 3 | 3 | 2 | 2 | 1 | 1 | | 2 | 2 | 3 | 19 |
| 10-19 | | 2 | 5 | 1 | 2 | 5 | 5 | 2 | 2 | 2 | 26 |
| 20-29 | | | | | 1 | | | 3 | 3 | 2 | 9 |
| 30-39 | | | 1 | 1 | 2 | | | 1 | 1 | 1 | 7 |
| 40+ | | | | 1 | | | | | | | 1 |
| Total. | 5 | 6 | 8 | 5 | 6 | 6 | 5 | 8 | 8 | 8 | 65 |

Table 86. (SAMPLE)

Date of registration related to average list size - (Participating Doctors only).

| Date of Registration ~~qualification~~. (years ago) | Average List Size. 0-499 | 500-999 | 1000-1499 | 1500-1999 | 2000-2499 | 2500-2999 | 3000-3499 | 3500-3999 | 4000+ | Unknown | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0-4 | | 1 | 1 | | | 1 | | | | | 3 |
| 5-9 | | 1 | | 4 | 5 | 4 | 1 | 1 | | 3 | 19 |
| 10-19 | | 1 | 2 | 3 | 8 | 6 | 4 | | | 2 | 26 |
| 20-29 | | | | | 2 | 2 | 2 | 1 | | 2 | 9 |
| 30-39 | | | 1 | 1 | 2 | | 1 | 1 | | 1 | 7 |
| 40+ | | | | 1 | | | | | | | 1 |
| Total | | 3 | 4 | 9 | 17 | 13 | 8 | 3 | | 8 | 65 |

Table No. 87. (SAMPLE)

Date of Registration related to average list size (Non participating doctors only.

| Date of Registration (years ago) | Average Size of Practice. | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 0-499 | 500-999 | 1000-1499 | 1500-1999 | 2000-2499 | 2500-2999 | 3000-3499 | 3500-3999 | 4000+ | Unknown | Total. |
| 0-4 | | | | | 1 | 1 | | | | | 2 |
| 5-9 | | | | 1 | 2 | 4 | | | | 1 | 8 |
| 10-19 | | 1 | 1 | 1 | 3 | 3 | 7 | | | 1 | 17 |
| 20-29 | | | 1 | 1 | 4 | 2 | 1 | | | 2 | 11 |
| 30-39 | | 2 | 2 | 1 | 2 | 2 | 2 | | | 1 | 12 |
| 40+ | | 1 | | 1 | 1 | | | | | | 3 |
| Total. | | 4 | 4 | 5 | 13 | 12 | 10 | | | 5* | 53 |

* Includes one deceased and one left district.

working in partnerships of two are most willing to participate in the work of an I.H.S.

V. Geographic distribution of participators and non-participators.

From Tables 89 and 90 it will be seen that there is a high proportion of participators living in Area IIA, approximately one-third of the total. In the same area are one fifth of the total in the "non-participating" group. There seems to be in area IIB a greater reluctance to participate than in any other area. In all other areas there are approximately equal proportions of willing and unwilling doctors. The willingness in Area IIA is most pronounced amongst those with an average list-size of 2,000-2,4999 patients. As the greatest geographic concentration of both industrial establishments and working population is in area IIA, i.e. the older parts of the city of Newcastle, it would appear that this area of any Tyneside I.H.S. should have more than sufficient locally resident part-time I.M.O.'s. The lack of response in Area IIB presents a problem, as here is located much of the shipbuilding and repairing industry. Apart from this single area, there would appear to be sufficient enthusiasm, in all geographic areas, to allow medical staff, for a Tyneside I.H.S. to be recruited from amongst the immediately local G.P.'s.

VI. Degree of participation in relation to other Commitments.

An attempt will now be made to assess the prior commitments of the 65 doctors who are willing to work in an I.H.S., in relation to amount of time they state they are able to devote to the work (Tables 88, 91, and 92).

Only ten of the sixty five doctors can spare more than 6 hours/week for the work. 20 of the remaining 55 can only give three hours or under per week to the work. It is those who are single-handed or have a single partner, who can, paradoxically, give the most time to this work(Table 88). This is somewhat surprising. It would be thought, on empirical grounds, that the doctors who have more partners to assist them would be better able to rearrange their present duties to allow them to devote more time to the work. On the other hand, it appears from Table 91, that most of the doctors who can undertake these longer sessions are comparatively young. It may be that it is these younger men who are better able to bear the added burden of the longer hours of work. There is no sufficiently detailed information available to relate the average list-size of the doctor to the amount of time he can devote to the work. (The figures in any one category in Table 92 are too small to allow this to be done). It would seem that, for example, 4-6 hours per week can be spared by doctors who have a very wide range of practice sizes. This

Table No.88.

Participating Doctors by Hrs/week available and
No. of Partners and Assistants.

| No. of Partners and/or Assistants. | 0-3 | 4-6 | 7-9 | 10+ | Total | NON-PARTICIPANTS |
|---|---|---|---|---|---|---|
| Single Handed | 6 | 7 | 2 | 3 | 18 | 14 |
| 1 | 9 | 14 | 2 | 2 | 27 | 19 |
| 2 | 3 | 10 | | | 13 | 10 |
| 3 | 1 | 3 | | 1 | 4 | 8 |
| 4 | 2 | 1 | | | 3 | 2 |
| Total | 20 | 35 | 4 | 6 | 65 | 53 |

TABLE No.89. Participating Doctors by Area of Practice and Average List Size.

| Average No. on List. | Area of Practice | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 11A | 11B | 11C | 11D | 111A | 111B | 111C | Blaydon etc. | Total. |
| 0-499 | | | | | | | | | | |
| 500-999 | 1 | 1 | | | | 1 | | | | 3 |
| 1000-1499 | | 2 | | | | 2 | | | | 4 |
| 1500-1999 | | 2 | | | 3 | 3 | | 1 | | 9 |
| 2000-2499 | | 8 | | 2 | 3 | 3 | | | 1 | 17 |
| 2500-2999 | | 3 | 1 | 1 | 4 | 2 | 1 | 1 | | 13 |
| 3000-3499 | | 2 | | 3 | 1 | 1 | | 1 | | 8 |
| 3500-3999 | | | | 1 | 2 | | | | | 3 |
| 4000+ | | | | | | | | | | |
| Unknown | 1 | 4 | | 2 | | 1 | | | | 8 |
| Total | 2 | 22 | 1 | 9 | 13 | 13 | 1 | 3 | 1 | 65 |

TABLE No.90. Non-Participating Doctors by Area of Practice and Average LIST Size - SAMPLE

* 2 = 1 deceased
1 left district.

| Average No. on List. | 1 | 11A | 11B | 11C | 11D | 111A | 111B | 111C | Blaydon etc | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 0- 499 | | | | | | | | | | 0 |
| 500-999 | 1 | 1 | | 1 | | 1 | | | | 4 |
| 1000-1499 | | 1 | 1 | 1 | | 1 | | | | 4 |
| 1500-1999 | | 2 | | | 1 | 2 | | | | 5 |
| 2000-2499 | | 3 | 2 | | 2 | 5 | | | 1 | 13 |
| 2500-2999 | | 3 | 1 | | 6 | 1 | | | 1 | 12 |
| 3000-3499 | 2 | | 3 | 2 | 2 | 1 | | | | 10 |
| 3500-3999 | | | | | | | | | | |
| 4000+ | | | | | | | | | | |
| Unknown | 1 | 1 | | | | | | 1 | | 5* |
| Total | 4 | 11 | 7 | 4 | 11 | 11 | | 1 | 2 | 53 |

TABLE NO.91.

## Participating Doctors by Hrs/Week available and date of Registration

| Date of Registration (years ago) | Hrs/week available 0-3 | 4-6 | 7-9 | 10+ | Total. |
|---|---|---|---|---|---|
| 0-4 | | 2 | 1 | | 3 |
| 5-9 | 4 | 10 | 2 | 3 | 19 |
| 10-19 | 11 | 12 | | 3 | 26 |
| 20-29 | 3 | 6 | | | 9 |
| 30-39 | 1 | 5 | 1 | | 7 |
| 40+ | 1 | | | | 1 |
| Total | 20 | 35 | 4 | 6 | 65 |

Table No.92.

Participating Doctors. Hrs/Week available and average size of list.

| Average List Size. | 0-3 | 4-6 | 7-9 | 10+ | Total |
|---|---|---|---|---|---|
| | | Hrs./week. | | | |
| 0-499 | | | | | |
| 500-999 | 2 | | 1 | | 3 |
| 1000-1499 | | 2 | 1 | 1 | 4 |
| 1500-1999 | 3 | 5 | | 1 | 9 |
| 2000-2499 | 6 | 10 | 1 | | 17 |
| 2500-2999 | 3 | 10 | | | 13 |
| 3000-3499 | 3 | 4 | | 1 | 8 |
| 3500-3999 | | 2 | | 1 | 3 |
| 4000+ | | | | | |
| Unknown. | 3 | 2 | 1 | 2 | 8 |
| Total | 20 | 35 | 4 | 6 | 65. |

probably represents the differing patterns of working of the different doctors.

## Personal experience and qualifications of participating doctors.

In this section the personal qualifications and the declared experience and interests of the "participating" doctors will be examined.

Of these 65 doctors, 37 were local graduates of the University of Durham, 21 were graduates of other universities and 7 were diplomates of one or other of the Royal Colleges. It is interesting to note, that out of the total of 78 Durham graduates who were questioned, about half assented to joining the scheme, whereas, 21 out of the total of 26 graduates of other universities assented. This feature is striking and there may be several inter-involved explanations of it. Four of these doctors possessed the degree of M.D. and one of these gentlemen had witten his thesis on the occupational hazard of "Asbestosis". He, together with another doctor, held the Diploma in Public Health.

12 of the 65 potential participants already held industrial appointments, whilst another 11 of them had held full, or part-time appointments in industry in the past. Of the 12 doctors with existing appointments, the amount of extra time which they could devote to any future I.H.S. is analysed in relation to the number of appointments which they already hold in Table 93. It is surprising that a general practitioner with four factories to care for already, should be able to assume further commitments, or that the doctor with three current industrial appointments, should be able to spare another 7 hours per week for this work.

17 of the doctors had current appointments on various governmental tribunals and boards, although the weekly amount of time which they devoted to these appointments was not enquired about. 15 were either active members of one, of the First Aid Associations, or regularly examined for one of these Associations at their proficiency examinations. One doctor attended each of the three local Remploy factories for 1-3 hours per week, as well as being I.M.O. to two other factories. Only one of the "participating" doctors had an existing appointment as an A.F.D. in the area. Altogether 24 of the 65 doctors who were willing to participate did not state that they had any appointment of the specific types enquired about.

The replies to the questions about experience, or interests in certain pertinent medical subjects showed that 19 of the doctors had interests or experience in Dermatology. A further 16 were experienced or interested in orthopaedics, 10 in opthalmology but only 2 in medical statistics. These 2 were both those men who held the Diploma in

TABLE No.93

Participating G.P's with I.M.O. appointments already and No. of Hrs/week available

| No. of appointments held already. | 0-3 | 4-7 | Unknown | Total |
|---|---|---|---|---|
| 1 | 5 | 1 | 1 | 7 |
| 2 | | | | 0 |
| 3 | 2 | 1 | 1 | 4 |
| 4 | | | 1 | 1 |
| Total | 7 | 2 | 3 | 12 |

and particularly the new Council Estates, seem to be badly served by resident G.P.'s. The coverage expressed as number of patients per doctor does not, however, show any under-doctoring when larger geographic areas , which include this housing, are considered. The largest personal and average lists seem to occur in areas IIB,IIC and IID, i.e. in the older parts of Tynemouth C.B., Gateshead C.B. and South Shields C.B. It is in these latter areas that the larger partnership groupings are found, but the newer housing areas on the North Bank are mostly served by larger partnership groupings of four doctors.

From the random one-in-three sample, the following facts were deduced. Over half of the general practitioners working on Tyneside would be willing to participate in any future I.H.S. of the type outlined in Chapter 20. It is the younger doctors who are more interested in this proposition. Similarly, it is those with the smaller personal lists, usually the younger G.P.'s, who would mostly participate in such a scheme. Furthermoœ, it seems to be the younger doctor in partnership with older practitioners with relatively larger lists who is the most willing to participate. There may be two related explanations of this situation. The young doctor is obviously anxious to increase his remuneration by taking on this extra work. This is so despite the fact that he has an <u>average</u> list size as large as his senior partners who themselves will not participate. He may also have been more conditioned during his training to this preventive philosophy of Medicine than older doctors.

Most of the doctors absolutely and proportionately who wish to participate live in Area IIA, i.e. the city of Newcastle. In area IIB, where the average and personal patient-lists are higher than elsewhere, there is an apparent deficiency of willing doctors.

Of those wishing to work in an I.H.S. it is the single-handed doctor, and the one with a single partner,who can give the larger number of hours per week to this work. There is no evidence that differing list-sizes affect the amount of time per week, that a doctor can give to the service. It is the younger doctors who most often are able to give longer periods to the work.

It would seem that nearly all the G.P.'s who are at present engaged in industry on Tyneside would be willing to increase still further their committments to this type of work. When the quality of service which they are at present giving is considered in Chapter 17, it will be seen that there will need to be adequate training facilities provided for them if this is to be encouraged. Many of these doctors have also got non-industrial professional commitments. It is doubted if they, who are largely the older doctors, would be able to perform these extra industrial duties adequately without allowing some or all of their total committments to suffer. As will be seen in Chapter 17, one of the main focis of the further eduction which will have to be provided, should be medical statistics. Only two doctors declared their experience or interest in this subject.

## Assessments of the committments of those G.P.'s already working in Tyneside Industry.

Individual committments have been detailed already in Tables 48, 49, and 50, and require no further comment.

It is seen from Table 94 that those G.P.'s who work part-time in industry have partnership arrangements very similar to those of all the other G.P.'s on Tyneside. When Tables No. 95 is considered, which relates to the personal list-size distribution of the G.P.-I.M.O.'s, a very atypical picture is seen. It appears as if there is a disproportionately large number of G.P.-I.M.O.'s among those doctors with over 3,000 patients upon their personal lists. The figures in the sub-categories of this table are too small to allow any relationship between personal list size and the number of hours worked in industry per week to be demostrated. When the distribution of the average list-size of each G.P.-I.M.O. is considered (Table 96) a more typical picture is seen. However, even after the averaging out of responsibilities with partners is accounted for, there is still a disproportionately high number of G.P.-I.M.O.'s with over 3,000 patients upon their average list. There is evidence to suggest, in fact, that a large proportion of those general practitioners at present engaged in Tyneside industry, also have heavy professional committments towards their National Health Service patients. This may in part explain some of the findings described in Chapter 19.

## References.

1. Annual Report 1956. Clerk to the Newcastle-upon-Tyne Executive Council.

Table No.94.

Partnership - Groupings of General Practitioners IMOs and All G.P.in Tyneside.

| No. Partners. | IMO's. | ALL GP's. |
|---|---|---|
| Single Handed. | 6 | 96 |
| 1 | 7 | 125 |
| 2 | 5 | 71 |
| 3 | 3 | 52 |
| 4 | 1 | 8 |
| Total | 22 | 352. |

TABLE No.95 Personal List Size of General Practitioners - IMO related to time given to Industry.

| No.of Hrs spent in factories/week. | 0-499 | 500-999 | 1000-1499 | 1500-1999 | 2000-2499 | 2500-2999 | 3000-3499 | 3500-3999 | 4000+ | Unknown | Total. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | No. of Patients | | | | | | |
| 0-3 | | | | 1 | 1 | | 2 | 1 | 5 | 2 | 12 |
| 4-7 | | | | 1 | | 1 | 3 | 1 | 2 | | 8 |
| 8-11 | | | | | | | 1 | | | | 1 |
| 11+ | | | | | | | | | | 1 | 1 |
| Total | | | | 2 | 1 | 1 | 6 | 2 | 7 | 3 | 22 |
| List Size distribution of ALL GP's | 36 | 22 | 22 | 31 | 27 | 38 | 43 | 38 | 45 | 50 | 352 |

Table No.96.   Average List Size of General Practitioner - IMO's related to time given to Industry.

No. of Patients

| No.of Hrs/week spent in factories. | 0-499 | 500-999 | 1000-1499 | 1500-1999 | 2000-2499 | 2500-2999 | 3000-3499 | 3500-3999 | 4000+ | Unknown | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0-3 | | | 1 | 2 | 3 | 1 | 3 | | | 2 | 12 |
| 4-7 | | | | 1 | 3 | | 4 | | | | 8 |
| 8-11 | | | | | | 1 | | | | | 1 |
| 11+ | | | | | | | | | | 1 | 1 |
| Total | | | 1 | 3 | 6 | 2 | 7 | | | 3 | 22 |
| List size distribution of ALL G.P. | 3 | 15 | 26 | 43 | 79 | 83 | 42 | 10 | 1 | 50 | 352 |

Tble No. 97.

Casualty Departments with Staffing and Limitations of action.

| Hospital. | Staff. | Limitations. |
|---|---|---|
| No. 1. | Trained Nursing Staff who perform other duties. Support by Local G.P's. | Clinic each a.m. by G.P's. Referral needed for X-ray examination and medical attention when doctor not in attendance. |
| No. 2. | Trained Nursing Staff (sole duties) Resident House Officers with other duties and supervised from hospital. No. 3. | Regular Castualty service. Limited by physical facilities and by type and number of staff available. X-ray available. |
| No.3. | Senior Casualty Officer. Full time Casualty Nursing Staff. Resident House Officers with other duties. | No. Limitations. |
| No. 4. | Trained Nursing Staff with other duties. Supported by local G.P. Supervision from Hospital No. 7. | As. N o..1. |
| No. 5. | Trained Nursing Staff with other duties. Senior Casualty Officer on call at Hospital No. 7. | Weekly Clinic by S.C.O. As for No. 1. in other respects. (No G.P. attendance). |
| No. 6. | Trained Nursing Staff performing other duties. Resident House Officer with other duties. Supervision from Hospital No. 7. | As for Hospital No. 2. |
| No. 7. | As for No. 3. | No. Limitation. |
| No. 8. (Regional Centre for several specialists e.g. Neuro Surgery) | Two Senior Casualty Officers- one medical, one surgical Residen House Staff solely employed on these duties. Nursing Staff employed solely on casualty duties. | No. Limitations. |

.........cont'd......

| Hospital | Staff | Limitations. |
|---|---|---|
| No. 9. (Teaching Hospital) | As for No. 8. | No. Limitations. |
| No. 10. | Trained Nursing Staffwith other duties. Supervised by local G.P's. | As for Hospital No. 1. |
| No. 11. | Trained Nursing Staff with other duties. Supervised from Hospital No. 12. | As for Hospital No. 5. |
| No. 12. | Trained Nursing Staff solely employed on casualty duties Resident House Officers with Other Duties. Senior Casualty Officer. | No. Limitations. |

Map. NO.6.

Geographic Distribution of Tyneside Casualty Depts.

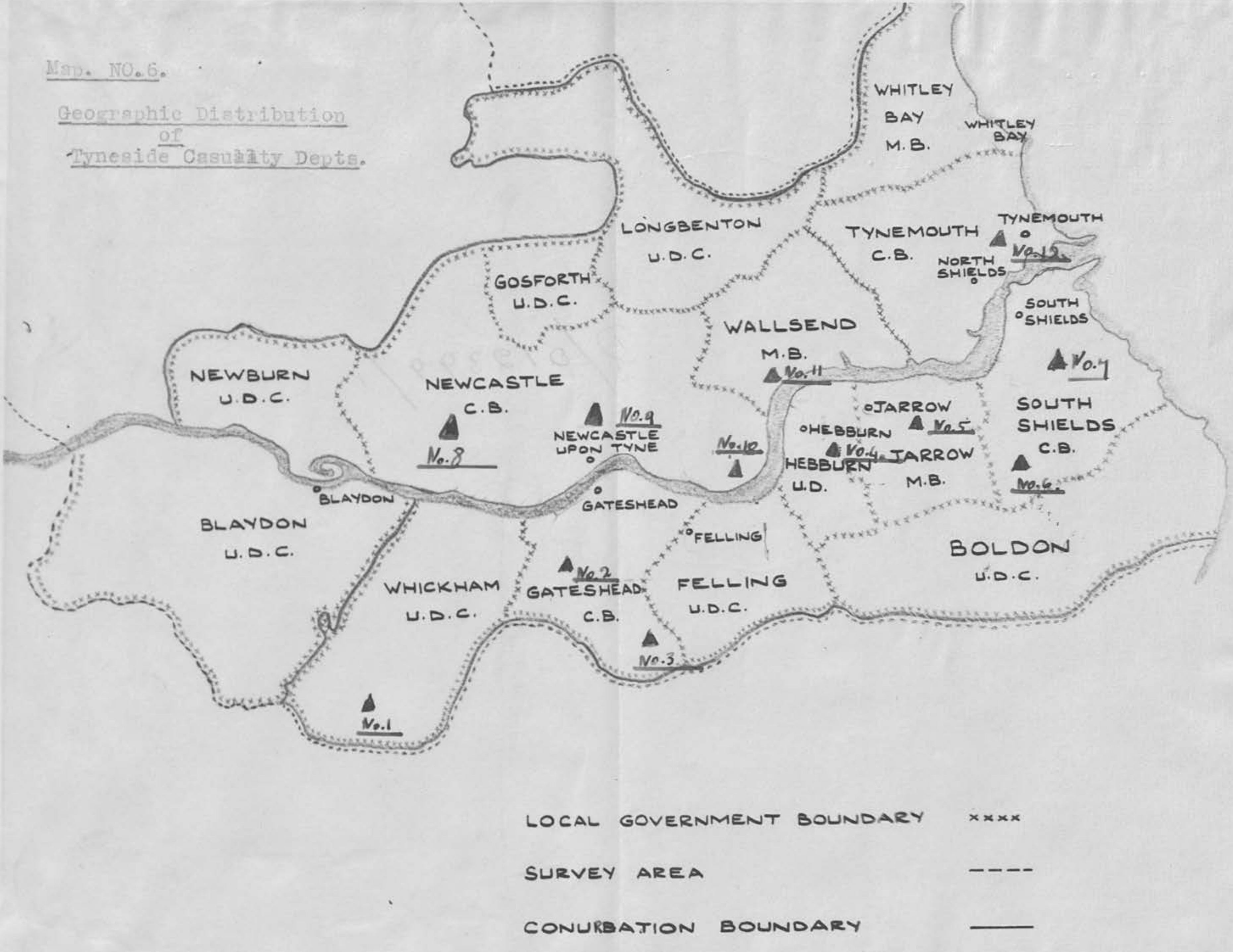

Table No...98.

The Work of the Casualty Departments of Tyneside Hospitals - 1955.

| Hospital | No. of New Patients. | No. of attendances (New & old patients) |
|---|---|---|
| 1. | 733 | 1,133 |
| 2. | 2,037 | 4,827 |
| 3. | 10,225 | 19,696 |
| 4. | 3,848 | 13,638 |
| 5. | 6,698 | 13,828 |
| 6. | 2,236 | 9,815 |
| 7. | 12,804 | 41,570 |
| 8. | 15,568 + 8825 (1) | 47,179 + 15,357 |
| 9. | 26,000 | Unknown (2) |
| 10. | 5,229 | 10,990 |
| 11. | 3,235 | 6,618 |
| 12. | 10,825 | 30,897 |
| Total | 108,353 | 209,548. |

Notes

1. No.8 now embodies eye hospital but this was physically seperate in 1955.

2. No.9 is the teaching hospital. Administrative internal divisions do not allow this figure to be arrived at.

References


a. Report of Newcastle Regional Hospital Board. 1955.

b. Report of United Newcastle-upon-Tyne Hospitals. 1955.

Table No. 99

Total of Casualties dealt with by Different Hospitals.

| Hospital. | INDUSTRIAL CASUALTIES. | | | ALL CASUALTIES. | | | |
|---|---|---|---|---|---|---|---|
| | Total. | Male. | Female. | Total. | Male. | Female. | Under 15 years. |
| No. 1. | 2 | 1 | 1 | 2 | 2 | 0 | 0 |
| No. 2. | 5 | 3 | 2 | 16 | 4 | 4 | 8 |
| No. 3. | 15 | 15 | 0 | 44 | 19 | 11 | 14 |
| No. 4. | 5 | 5 | 0 | 11 | 11 | 0 | 0 |
| No. 5. | 7 | 6 | 1 | 21 | 10 | 3 | 8 |
| No. 6. | 1 | 1 | 0 | 1 | 1 | 0 | 0 |
| No. 7. | 16 | 16 | 0 | 54 | 29 | 9 | 16 |
| No. 8. | 17 | 14 | 3 | 64 | 36 | 14 | 14 |
| No. 9. | 57 | 50 | 7 | 105 | 63 | 20 | 22 |
| No. 10. | 6 | 5 | 1 | 20 | 5 | 6 | 9 |
| No. 11. | 5 | 5 | 0 | 14 | 5 | 0 | 9 |
| No. 12. | 9 | 7 | 2 | 25 | 9 | 5 | 11 |
| TOTAL. | 145* | 128 | 17 | 377 | 194 | 72 | 111. |

* (includes 3 referrals to No. 9. from other hospitals in investigations)

Table No. 100

Age and Sex Distribution of Casualties.

| Age | Male | Female | Total |
|---|---|---|---|
| 15- | 30 | 8 | 38 |
| 25- | 27 | 2 | 29 |
| 35- | 34 | 2 | 36 |
| 45- | 16 | 3 | 19 |
| 55- | 18 | 2 | 20 |
| Total | 125 | 17 | 142 |

Table No. 101

Proportionate Age-Distribution of Insured Population of Northern Region & of Casualties.

| Age Group. | Total Insured Population. | Casualties. |
|---|---|---|
| 15- | 24.2% | 26.8% |
| 25- | 21.9% | 20.4% |
| 35- | 20.3% | 25.4% |
| 45- | 19.2% | 13.4% |
| 55- | 11.9% | 14.1% |
| 65+ | 2.5% | |
| | 100.0% | 100.1% |

Table No. 102

Employing Industry
related to age of Casualty
(Age in years.)

| Industrial Order | 15- | 25- | 35- | 45- | 55+ | Total |
|---|---|---|---|---|---|---|
| I | | | | | | |
| II | 7 | 3 | 11 | 5 | 5 | 31 |
| III | | 1 | 1 | | 1 | 3 |
| IV | | | 1 | | | 1 |
| V | 2 | 1 | 1 | | | 4 |
| VI | 9 | 8 | 8 | 4 | 5 | 34 |
| VII | 1 | | 1 | | | 2 |
| VIII | | 2 | 1 | | | 3 |
| IX | | | | | | 0 |
| X | | 1 | | | | 1 |
| XI | | | | | | 0 |
| XII | 1 | | | | | 1 |
| XIII | 3 | | 1 | 1 | 1 | 6 |
| XIV | 1 | 1 | | | | 2 |
| XV | | | 1 | | | 1 |
| XVI | | 1 | | | | 1 |
| | | | | | | Total 59 |
| XVII | 4 | 2 | 1 | | | 7 |
| XVIII | 1 | | | | | 1 |
| XIX | 2 | 2 | 3 | 3 | 3 | 13 |
| XX | 6 | 1 | 1 | 1 | 1 | 10 |
| XXI | | | | | | |
| XXII | | 2 | 1 | 2 | 1 | 6 |
| XXIII | | 1 | 3 | 1 | 1 | 6 |
| XXIV | | 2 | 1 | 2 | 1 | 6 |
| Total | 37 | 28 | 36 | 19 | 19 | 139 |

(3 were unclassifiable)

Survey Industries it is seen that 34 out of 59 or some 57.3% occurred in Order VI. This roughly accords with that proportion of the Survey Population - 52.1% which works within this Order. There is a suggestion here that, although this Order includes so much of the local heavy industry, it does not cause a disproportionately high amount of work to be thrown upon the hospital casualty departments. This point would require much greater attention if it was to be firmly established, as it does not accord with any empirical estimate of the true situation. It is impossible to say if the Survey Industries, as a whole, cause a disproportionate amount of work to fall on the casualty departments, in relation to their total working population. The non-survey industries include mining, and the Survey Area does not include much active mining. Many of the casualties in the non-Survey Industries, however, were found to come from mines just outside the Survey Area. It is not possible to obtain data about the insured population of these numerous mines, and thus this comparison cannot be made. (No other casualties in other Survey or Non-Survey Industries occurred in firms working outside the Survey Area).

Diagnosis of Industrial Casualties.

The pattern of ailment causing these patients to attend a casualty department is shown on table . The primary diagnosis only is shown, and this was drawn from all the information given about the patient's condition. In cases of doubt, and there were many, this information was clarified by a further visit to the casualty department. There are six main diagnostic categories. The largest single group - "injuries including burns" - contain 69 or 49.0% of the 141 cases where a diagnosis was obtainable with certainty. This category included all those ailments which did not fall into any other category of traumatic conditions. Lacerations - 30 cases - were the next largest group, and the remaining groups were all relatively small. There were 48 or 34.0% of all diagnoses involving the conditions of the fingers or hands, and 23 or 16.3% of all involving the toes or feet. Of the 66 X-Ray examinations that had to be made, some 62 were made upon the total of 80 cases presenting with "injuries" or fractures. There were only nine of these 62 X-Rays which confirmed the, presumably suspected, clinical diagnosis of a fracture.

Treatment of Industrial Casualties.

The main items of treatment given are shown on Table 104 . It was not possible to classify the information on this point which came from the teaching hospital. Because of the large number of casualties attending there, this was a considerable omission. The internal distribution of the work of this insitution apparently made the collection of this data administratively impossible.

TABLE No. 103

## Diagnosis of Casualties

| Diagnosis. | | Total No. | No. with XRay Examination |
|---|---|---|---|
| **Fractures** | | | |
| | Metatarsals | 1 | 1 |
| | Metacarpals | | |
| | Toes | 3 | 3 |
| | Fingers | 4 | 4 |
| | Forearm | 1 | 1 |
| | Ankle | | |
| | Wrist | 1 | |
| | Pelvis | 1 | |
| Total | | 11 | 9 |
| **Injuries** | | | |
| | "Multiple" | 1 | - |
| | Arm | 4 | 2 |
| | Shoulders | 3 | 3 |
| | Elbow | 2 | 1 |
| | Wrists | 1 | 1 |
| | Hands | 5 | 3 |
| | Fingers | 13 | 10 |
| | Leg & Knee | 4 | 3 |
| | Ankles | 9 | 6 |
| | Toes | 7 | 6 |
| | Chest | 3 | 3 |
| | Back | 6 | 5 |
| | Head | 1 | 1 |
| Total | | 69 | 53 |
| **Lacerations** | | | |
| | Fingers | 12 | 1 |
| | Hand | 4 | |
| | Toes | 1 | 1 |
| | Limbs | 4 | |
| | Scalp & Face | 9 | 1 |
| Total | | 30 | 3 |
| **Eyes** | | | |
| | Foreign Bodies | 9 | |
| | "Injury" | 1 | |
| | Other | 2 | |
| Total | | 12 | |
| **Septic Wounds etc** | | | |
| | Finger | 10 | |
| | Knee | 1 | |
| | Wrist | 1 | 1 |
| Total | | 12 | 1 |
| **Miscellaneous** | | | |
| | Blast Surgery | 1 | |
| | Gastro-Intestinal Upset | 1 | |
| | Skin Complaints | 1 | |
| | Medical Emergencies | 2 | |
| | Surgical Investigation | 2 | |
| Total | | 7 | |
| Grand Total | | 141 (1 diagnosis unknown) | 66 |

Table 104

## Treatment of Casualties.

| Treatment | | | No. of Casualties. | |
|---|---|---|---|---|
| supportive & immobilis-atory | Plaster of Paris & other splinting | | 8 | |
| | Strapping | | 8 | |
| | Compresses | | 13 | TOTAL = 29. |
| Wound Treatment | Toilet and Dressings | | 19 | |
| | Sutures | | 14 | |
| | INJECTIONS | Penicillins | 7 | |
| | | A.T.S. | 9 | TOTAL = 49. |
| Eye Treatment | Removal of Foreign Bodies. | | 6 | |
| | Other treatments | | 7 | TOTAL = 13. |
| Other Surgical Procedure | Incisions of sepsis | | | |
| | Removal of other Foreign Bodies | | 1 | TOTAL = 1. |
| Physiotherapeutic. | | | 2 | TOTAL = 2 |
| Examination and Reassurance | | | 9 | TOTAL = 9 |
| Other Medical Treatments | | | 2 | TOTAL = 2. |
| Admitted or/to return | | | 3 | TOTAL = 3 |
| Referred elsewhere. | | | 3 | TOTAL = 3 |
| | | | | GRAND TOTAL = 111. |

NOTE: ALL items of treatments recorded seperately

111 classified items of treatment were given in the non-teaching hospitals to some 88 patients. Thus a patient with a fractured toe may well also need a suture and an A.T.S. injection. The largest group of 49 items of treatments (or 44.6% of the total), was made up of attention to wounds. This comprised sutures, toilets, and dressings, and injections of penicillin and A.T.S. The next commonest treatments were supportive or immobilising procedures, such as splinting and strapping. There were 29 or 26.1% of these. Eye treatments were next most common with 13 items, and then followed a large number of miscellaneous procedures each with smaller numbers of items. 8.1% of all items of treatment consisted only of examination or reassurance.

## Disposal of Industrial Casualties.

The disposal of the 141 patients, about whom this information was obtainable, is next considered (Table 105). Some 69 or 49.0% were asked to return to the casualty department, at a shorter or longer interval, for re-examination (these included 7 patients who had to return on the following day for an X-ray examination). Another 54 or 38.3% were discharged absolutely. Surprisingly, in view of the number who were asked to return for further treatment, only 13 (9.2%) were asked to attend their own doctor for further care. No patients were referred to a factory medical department. The performance of an X-ray examination seemed to allow patients to be discharged more readily than if one was not performed (Table 105). This is probably due to the fact that many of these patients were X-rayed for "precautionary" reasons, and a negative result combined with the triviality of their original injury allowed this course to be taken. This suggestion is further confirmed when the classification of disposal by diagnosis is examined. All the fracture cases were asked to return to the hospital, but only 27 of the 69 with "injuries" were asked to do so, 32 of these were discharged absolutely. It was in the "injuries" group where the largest proportion of people lay who were asked to attend their own doctor for further care (There were only 7 of these). A surprisingly large proportion of the 30 patients with lacerations, some 23 or 76.7% were asked to reattend. This was presumably for dressings, injections, and the removal of sutures. It is surprising that only 2 of these people were referred to their own doctor. This part of the investigation was hampered by an organisational misunderstanding. The old Eye hospital is now incorporated in Hospital No. 3., and it was understood at the time the investigation was organised, that all its casualties would be included in this hospitals figures. This was not done, and it proved impossible to achieve an accurate record in retrospect. The totals for eye injuries thus only represent that being sent to other hospitals. It was the patients with eye complaints who were

Table No. 105

Disposal of Casualties with and without X-Ray Examination.

| Disposal | Without X-Ray Examination | With X-Ray Examination | Total |
|---|---|---|---|
| Admitted | 4 | 1 | 5 |
| Referred to Family Doctor | 5 | 8 | 13 |
| To return to Hospital | 45 | 24 | 69 |
| Discharged | 28 | 26 | 54 |
| Total | 82 | 59 (excludes 7 asked to return on followin g day). | 141 1= no information. |

Table No. 106

## Diagnosis of Casualties related to Disposal

| Diagnosis | To Return to hospital | Discharged | Referred to Family Doctor | Admitted. | Total. |
|---|---|---|---|---|---|
| **Fractures.** | | | | | |
| Metatarsal. | 1 | | | | 1 |
| Toes. | 3 | | | | 3 |
| Fingers. | 4 | | | | 4 |
| Forearm. | 1 | | | | 1 |
| Wrist | 1 | | | | 1 |
| Pelvis. | 0 | | | 1 | 1 |
| Total. | 10 | | | 1 | 11 |
| **Injuries.** | | | | | |
| Multiple. | | | | 1 | 1 |
| Arm | 2 | 2 | | | 4 |
| Shoulder. | 2 | 1 | | | 3 |
| Elbow. | 2 | | | | 2 |
| Wrists. | | | 1 | | 1 |
| Hands | 3 | 2 | | | 5 |
| Fingers | 6 | 4 | 2 | 1 | 13 |
| Leg & Knee | 2 | 2 | | | 4 |
| Ankles | 3 | 6 | | | 9 |
| Feet | 1 | 7 | 2 | | 10 |
| Toes | 5 | 2 | | | 7 |
| Chest | 1 | 1 | 1 | | 3 |
| Back | | 5 | | 1 | 6 |
| Head | | | 1 | | 1 |
| Total. | 27 | 32 | 7 | 3 | 69 |
| **Lacerations.** | | | | | |
| Hands | 4 | | | | 4 |
| Fingers | 10 | 2 | | | 12 |
| Limbs | 3 | 1 | | | 4 |
| Toes | 1 | | | | 1 |
| Scalp & Face | 5 | 2 | 2 | | 9 |
| Total. | 23 | 5 | 2 | | 30 |
| **Eyes.** | | | | | |
| Foreign Bodies. | 2 | 7 | | | 9 |
| Injury | | 1 | | | 1 |
| Other | | 2 | | | 2 |
| Total. | 2 | 10 | | | 12 |
| **Sepsis & other Foreign Bodies.** | | | | | |
| Finger | 5 | 5 | | | 10 |
| Wrist | | 1 | | | 1 |
| Knee | | 1 | | | 1 |
| Total. | 5 | 7 | | | 12 |
| **Miscellaneous** | | | | | |
| Blast Injuries. | | | 1 | | 1 |
| Skins | 1 | | | | 1 |
| Medical Complaints | | | 2 | 1 | 3 |
| Surgical Complaints | 1 | | 1 | | 2 |
| Total. | 2 | | 4 | 1 | 7 |
| GRAND TOTAL. | 69 | 54 | 13 | 5 | 141. |

most frequently discharged. It is reiterated that none of these casualty patients were asked to attend their factory medical departments for further attention.

The pattern of disposal of patients by the different casualty departments shows some significant differences (Table 107). The figures in most of the categories are small and too much reliance should not be placed on them for this reason, and because of the other general qualifications placed on this investigation. It is clear, however, that the teaching hospital, No. 9, is much more willing than any of the other hospitals, to discharge its casualty patients after a single visit. It is a pity that it was impossible to discover whether it took this hospital longer to arrive at this decision than it took the other hospitals to deal with the patient on his first visit. The smaller hospitals, with only nursing staffs in attendance, were responsible for the 3 patients that were referred "elsewhere" - these all went to the teaching hospital for further investigation. There is a tendency for the "base" hospitals to ask for their patients to return for further attention, more often than do the other hospitals. They tend, of course, to deal with the more serious cases, and this in part is one explanation.

<u>Time Spent in Casualty Departments.</u>

It was only possible to obtain information concerning the length of time spent in receiving attention in the casualty department about a total of 88 patients. This was due to the difficulties already mentioned, with tracing a patient's movements in the teaching hospital. The distribution of the time spent by these patients is shown on Table 108. It will be seen from this that a larger proportion of time is spent in a casualty department, no matter the diagnosis and treatment, when an X-ray examination needs to be taken. This is, of course, partly explained by the time taken for the examination itself, and the fact that some of these patients are suffering from conditions which take a longer time to complete treatment, i.e. fractures. But a large proportion of those who have X-rays taken seem to have them done for "precautionary" purposes. It is these people that spend an undesirably and unnecessarily long time in the casualty departments. This point is illustrated further when the time taken is related to the type of treatment given (Table 109). The eye treatments take the shortest time, and the wound treatments rarely take longer than one hour. It is within the supportive and immobilisation group of treatments that the longest periods are spent. From the breakdown of items of treatment given within this group, it seems to matter little whether a plaster, strapping or a compress is being applied; almost half of the total so managed take over an hour to complete

Table No. 107

Disposal of Casualties by different hospitals

| Hospital. | Referred elsewhere. | Admitted. | To Family Doctor. | To return to hospital. | Discharged. | TOTAL. |
|---|---|---|---|---|---|---|
| No. 1. | 0 | 0 | 2 | 0 | 0 | 2 |
| No. 2. | 0 | 0 | 2 | 1 | 2 | 5 |
| No. 3. | 0 | 1 | 4 | 9 | 1 | 15. |
| No. 4. | 1 | 0 | 0 | 4 | 0 | 5. |
| No. 5. | 0 | 0 | 0 | 3 | 4 | 7. |
| N o. 6. | 0 | 0 | 0 | 1 | 0 | 1 |
| No.7. | 0 | 1 | 0 | 11 | 4 | 16. |
| No.8. | 0 | 1 | 2 | 12 | 2 | 17. |
| No.9. | 0 | 2 | 0 | 16 | 38* | 57. |
| No. 10. | 1 | 0 | 0 | 2 | 3 | 6. |
| No. 11. | 1 | 0 | 3 | 1 | 0 | 5. |
| No. 12. | 0 | 0 | 0 | 9 | 0 | 9. |
| TOTAL. | 3. | 5. | 13. | 69. | 54. | 144. |

* + 1 = Unknown.

Table No. 108

<u>Time Taken to dispose of Casualties.</u>

| Time Taken. | Without X-ray Examination. | With X-ray Examination. | | Total. |
|---|---|---|---|---|
| Under ½ hour | 30 | 4 | | 34 |
| ½ - 1 hour | 19 | 11 | | 30 |
| 1 hour - | 4 | 9 | | 13 |
| 2 hours - | 0 | 7 | | 7 |
| 3 hours + | 1 | 3 | | 4 |
| TOTAL | 54 | 34 | | 88 |

N.B. Those asked to return next day or later for X-ray Examination are included ~~___~~ under 'without X-ray'

Table No. 109

## Treatment given in relation to time taken.

| Treatment. | Under ½ hr. | ½-1 hour | 1 hr. | 2 hr. | 3 hrs + | Total |
|---|---|---|---|---|---|---|
| **Supportive.** | | | | | | |
| Plaster of Paris | 1 | 1 | 1 | 3 | | 6 |
| etc. | 1 | 3 | 1 | 2 | 1 | 8 |
| Compresses | 5 | 3 | 3 | 1 | | 12 |
| Total. | 7 | 7 | 5 | 6 | | 26 |
| **Wound Treatment.** | | | | | | |
| Toilet & Dressing. | 5 | 3 | | | | 8 |
| | 3 | 4 | 1 | | | 8 |
| (Penicillin | | | | | | |
| ( A.T.S. | | 1 | | | | 1 |
| Total. | 8 | 8 | 1 | | | 17 |
| **Eye Treatment.** | | | | | | |
| Removal of Foreign Bodies. + | 7 | | | | | 7 |
| other treatments | 2 | 1 | | | | 3 |
| Total. | 9 | 1 | | | | 10 |
| Physiotherapeutic | | 1 | | | 1 | 2 |
| Examination & Reassurrance | 3 | 3 | 2 | 1 | | 9 |
| Other Medical treatment | 1 | 1 | | | | 2 |
| admitted or to return | 3 | | 1 | | | 4 |
| Referred elsewhere | 1 | 1 | 1 | | | 3 |
| **Combined treatments** | | | | | | |
| Plaster & Dressings | | | 1 | | | 1 |
| Dressings & Penicillin. | 2 | 3 | | | | 5 |
| Suture & ATS &/or Penicillin | | 3 | 1 | | 1 | 5 |
| Dressing & ATS | | 2 | | | 1 | 3 |
| Removal of F.B, ATS & Dressing. | | | 1 | | | |
| Grand Total. | 34. | 30. | 13. | 7. | 4. | 88. |

NOTE: only primary treatments recorded either singly or as combined treatments.

treatment. Probably a lot of this time is taken up with the X-Ray examination. Overall 64 or 72.7% of these people were clear of the casualty department in under one hour, but 20 or 22.7% took between one and two hours to complete their visit. The figures for many of the hospitals are too small to allow comparison to be made between them in this respect. When the time spent is related to the diagnosis, it is seen that 17 out of the 24 patients who take over an hour are in the fracture and "injuries" groups. This corresponds to the treatment-time pattern. There seems to be little relationship between the time spent in the casualty department and the nature of the employing industry, at least within the Survey Industries. The figures for Order VI are the only ones large enough to allow this analysis to be made with confidence, but there is little variation here from the overall time-distribution.

In Summary.

The geographic distribution of the main casualty departments on Tyneside is determined by the main centres of residence of the population but with no apparent specific regard to the location or nature of industry. The casualties which occurred in industry during a period of 24 hours and needed attention at a hospital, did not show any unusual age or industrial distribution. They represented 37.7% of the total casualties occurring during that time and 42.5% of the total occurred in the Survey Industries and Population. The Teaching Hospital dealt with 39.3% of all industrial casualties, and hospital No. 8 with another 14.8%. A broad group of miscellaneous "injuries" and the lacerations together accounted for 70.2% of the total. 76.8% of the former category were X-rayed with negative result. The performance of an X-ray examination appreciably increases the time that the patient must spend in the casualty department. A large proportion of the items of treatment given, consist of procedures such as strapping, dressings, toilets and sutures. There is a marked tendency to ignore the place of the general practitioner, and the factory medical department, when disposing of casualties from hospital. The pattern of disposal seems to vary greatly between different departments.

It would appear that if facilities for X-Ray examination were available to an I.H.S., then the medical and nursing staff of this service would be able, with benefit to patient and industry, to undertake a portion of the present work of casualty departments. The object in doing this would be to allow the patient, if he was fit enough, to return to work with a minimum of delay. It would require a closer and detailed assessment of each "industrial" casualty in a larger investigation, in order to estimate what proportion of the patients now treated by casualty departments

Table No. 110

Time Spent in Casualty Departments in relation to Diagnosis

| Time Taken. | Fracture. | 'Injuries'. | Lacerations. | Eyes. | Sepsis, Foreign Bodies. | Miscellaneous. | Total |
|---|---|---|---|---|---|---|---|
| Under ½ hour. | 2 | 14 (+1 'multiple' admitt) | 4 | 9 | 2 | 3 | 34 |
| ½-1 hour | 3 | 15 | 7 | 1 | 2 | 2 | 30 |
| 1 hour - | 2 | 5 | 4 | | 1 | 1 | 13 |
| 2 hours | 3 | 4 | | | | | 7 |
| 3 hours + | | 3 | 1 | | | | 4 |
| Total. | 10 | 41 | 16 | 10 | 5 | 6 | 88 |

Table No. 111

Time spent in Casualty Department in relation to Industry Employing them

| Industrial Order. | Under 30 minutes. | ½-1 hr. | 1. hr-. | 2. hr-. | 3. hrs+. | Total. |
|---|---|---|---|---|---|---|
| I | | | | | | 0. |
| II | 3 | 5 | 3 | 2 | 2 | 15. |
| III | | | 1 | | | 1 |
| IV | 1 | | | | | 1. |
| V | 1 | | | 1 | | 2. |
| VI | 10 | 11 | 4 | 1 | | 26. |
| VII | 1 | | | 1 | | 2. |
| VIII | 1 | 1 | | | | 2. |
| IX | | | | | | 0. |
| X | | | | | | 0. |
| XI | | | | | | 0. |
| XII | 1 | | | | | 1. |
| XIII | 2 | 1 | 1 | | | 4. |
| XIV | 2 | | | | | 2. |
| XV | | 1 | | | | 1. |
| XVI | | 1 | | | | 1. |
| TOTAL | | | | | | 43. |
| XVII | 2 | 2 | | 1 | | 5 |
| XVIII | | 1 | | | | 1. |
| XIX | 4 | | 1 | 1 | 2 | 8. |
| XX | 4 | 2 | | | | 6. |
| XXI | | | | | | 0. |
| XXII | 1 | 1 | | | | 2. |
| XXIII | 1 | 1 | | | | 2. |
| XXIV | | 2 | 1 | | | 3. |
| TOTAL | 34 | 29 | 11 | 7 | 4 | 85. |

(3 unclassifiable).

## Chapter 16.

### Previous Industrial Health Surveys.

There are no reports in the published British literature describing the type of Survey which has been attempted in an area of the size and complexity of Tyneside.

There are several reports in the American literature describing Industrial Health Surveys of large industrialised metropolitan areas. 1 2 Owing to the difference of attitudes to the subject of Industrial Health as a whole, which in America includes much therapeutic work, and of differing patterns of administrative provision for the non-industrial health services, it was difficult to abstract from these much of real value to a British survey.

After the Dale Committee 3 had called for further investigations and surveys to be made of the existing situation, several British Surveys were carried out. The results of most of these were circulated privately. It is these surveys which will now be discussed.

Most of these early Industrial Health Surveys were carried out by local Health Authorities. They varied in focus of attention, area and scope. The following then, are some examples of the differing types of Industrial Health Survey which were carried out under the stimulus provided by the report of the Dale Committee.

Perhaps the best known of these Surveys, all of which were carried out in the period 1952-53, was made in the Govan Ward of Glasgow. 4 It aimed to cover industrial as well as non-industrial establishments of all types and sizes and to assess the need of the area for an Industrial Health Service. A census was compiled of all places of work in this heavily industrialised area of the City, together with an outline of the total number and type of people which these places employed. The range of activities covered ran from a shipyard through shops, schools, and cinemas to the public services such as the police, and even to greyhound tracks. Each of these places was visited and an assessment made of the working conditions and of the health and welfare facilities provided in them. Detailed assessments were made of basic environmental and sanitary conditions. These covered such things as ventilation, heating, sanitary accommodation and washing facilities. Broader, vaguer assessments were made of the general working conditions and of general occupational health hazards. Where specific hazards occurred these were noted. Finally the numbers and types of Health personnel at work in Industry in the area were noted. Based upon this data a brief outline was made of a plan for the development within the area of health-care at work. The places in the plan of the existing I.H. Services, the general practitioners, and the Local Authority were stated, and the method of organisation and the main problems to be expected were detailed.

This survey is an example of the geographically limited but very comprehensive type of investigation. It did, however, emphasize the difficulties involved in surveying environmental conditions in a large number of varying establishments, and attempting to reduce the results to something more specific than broad generalisations. The number of factories and the range of their activities and working conditions in this small area was so great that even this conscientious work could do no more than detail the basic sanitary provisions. It then had to fall back upon examples of and generalisations about the vast and varied mass of other environmental conditions and problems.

It is interesting to note that the Glasgow Corporation, following upon this survey made a brave and promising attempt to institute an I.H.S. in the Govan area on the lines which had been outlined. This came to an unfortunate end when it was discovered that the Corporation did not have the necessary statutory power to expend public funds for this purpose.

A different type of Survey was carried out by the Local Health Authority in Southampton. (5) Here the focus of attention was not geographic but was the main industry of the city, namely the docks. Again a census of industrial establishments was compiled. This showed that although the main source of employment was in the docking and wharfing industries themselves, there was, in fact, a fair amount of other industry in the geographic area of the docks. This included particularly the shiprepairing industry, but there were also various workshops of the railways and harbour authorities within the area. The "sanitary" approach to working conditions was also predominant in this survey. Considerable attention was paid to the provision of such things as water closets, urinals, washing facilities and canteen facilities. A detailed description was given of some of the actual working conditions. The inadequacy of these was commented upon in passing during the more general description of the various industries. The port medical service was described, and an outline given of the duties of the staff of this service.

This Southampton survey re-emphasized two points, which were observed during the consideration of the Glasgow survey. Firstly a good deal of attention was paid to the "sanitary" aspect of working conditions, but little was paid to the actual occupational hazards of the work. Secondly, only a general description was possible of these hazards for reasons noted previously.

In the County of Cheshire an Industrial Health Survey was made of a rural area. (6) This involved personal visits to a wide range of non-industrial and industrial establishments, after a preliminary census had been carried out of these and their working populations. As in the other surveys great attention was paid to the welfare and sanitary aspects of working conditions. This survey, however, covered a very detailed range of other topics. As well as attention being paid to W.C.'s, canteens, washing facilities etc., consideration was given to actual measurements of environmental conditions lighting, cleanliness etc. Specific hazards in any of the places visited were also noted. Finally detailed attention was given to the health personnel available to the establishments visited, and also to the National Health Service in the locality. This interesting Survey revealed a remarkable amount of industry to be existing in a scattered rural area. It was unique in that it detailed, at considerable length the health services, welfare and sanitary arrangements of industry in such a wide-spread area. This survey paid more attention to the health facilities available outside industry. But it too had difficulty in classifying the numerous hazards and influences present in the working environment, and of relating these to the provisions made to alleviate them.

A smaller survey in a smaller, and less industrialised town was carried out in Reading. (7) This contented itself with a description of the industries located there, and with a scanty outline of some of its basic sanitary conditions. This did, however, show that in this type of town industry may well be found in much less dense concentrations than in the bigger manufacturing cities. Thus any I.H.S. may be more difficult to organise in these places.

Finally a survey of a different type of industrialised area, the Metropolitan Borough of Tottenham, is noted. (8) Here the Survey was only meant to be a pilot survey and it recognised that the purely "sanitary" approach was not enough. Some way of classifying details about actual working conditions over a wide range of different industries was first needed, before a comprehensive environmental study could be made.

In these five differing types of Industrial Health surveys there are several common characteristics. The concentration upon the "sanitary" and welfare aspects of working conditions had been noted. It is doubted if this really gave an estimate of the true situation. Inadequate facilities of this type are, however, probably evidence of a generally retrograde attitude by employers and may signify that profound environmental hazards are being likewise ignored. Furthermore, all the surveys concentrated in detail upon a large number of factories in a relatively small area, but these only represented a fraction of the total industry or of the total employed population of the whole area of that Local Authority. In this way a greatly detailed picture was obtained of several minute portions of the total situation. None of these Surveys attempted to assess, on a broader field, the existing health provisions in industry throughout a highly industrialised urban region. Whilst a generally poor environmental situation was revealed, particularly in the smaller factories, it was difficult for these Surveys to be specific about anything other than the "sanitary" aspect of working conditions.

In the light of these previous experiences it was decided that the survey on Tyneside, despite its limited resources and the large area, should concentrate upon different points on a broader regional field. An attempt was made, therefore, to relate the amount of existing health care to the total of exposed industry, and to the exposed population; to determine any differing patterns of care which existed, such as between factory size-groups or different industries; finally the quality of that existing care was assessed in detail. It is this latter aspect of the work which is covered in the following chapter.

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# Chapter 17.

## An Assessment of Existing Industrial Health Services on Tyneside.

There are 106 establishments within Tyneside industry which provide some type of Industrial Health Service (I.H.S.). Their staffing provisions range from the full time Industrial Medical Officers (I.M.O.), with a full supporting nursing and auxiliary staff, through the unassisted I.M.O. and the unsupervised trained nurse, to the unsupervised full-time first aid worker. All of the balance of the 856 factories provide the minimum facilities necessary under the Factories Acts. They are not included here, as this assessment will consider only those facilities above this statutory minimum level.

The type of I.H.S. provided by the 106 firms, when classified according to the type of Health Personnel employed, is shown on Table 112 . It was decided to concentrate the attention of this part of the Survey upon the first four categories shown, and to ignore the unsupervised first-aid auxiliary. This meant that over one-third of the total of 106 factories would not be assessed. This decision was taken for several reasons, the most important being the lack of resources of the Survey. A visit to a factory to complete this assessment rarely took less than three hours, and it sometimes took a whole day. The greatest difficulty encountered was in the fixing of mutually convenient times for the visit. Furthermore the appointment once made was often postponed at the last minute by factory managements, who had unexpected emergencies, to deal with. It was further considered that the four categories of staffing to be considered, the unassisted I.M.O, the I.M.O. assisted by trained nurses, the I.M.O. assisted by full-time auxiliaries and the unsupervised trained nurse, would give a sufficiently overall estimate of the quality of service being provided. It was assumed that the unsupervised auxiliary could not give a higher standard of service than any of these categories. Thus the situation revealed by a survey of these four categories would, presumably, be superior to that in the omitted factories.

This restriction left a total of 72 factories to be considered and of these it proved possible to visit 56. The distribution, amongst the four categories of these assessments, is shown on Table .

## The Nature of the Assessment.

The suggested functions of an ideal I.H.S. are outlined in Chapter 19. The true functions of an I.H.S. have become progressively clearer with the passage of time and with successive pronouncements by responsible and authoritative bodies of opinion'

## Table No 112

### Factories visited in Course of Survey in relation to total number "at risk".

| Type of Health Coverage. | Total number of establishments "at risk". | Total Number of establishments personally visited. |
|---|---|---|
| Included Categories. | | |
| a). I.M.O. alone. | 11 | 5 |
| b). I.M.O. and trained nurse. | 30 | 28 |
| c). Trained nurses without supervision. | 24 | 19 (One covers two establishments). |
| d). I.M.O. and full time First Aid staff. | 7 | 4 |
| | 72 | 56 |
| Excluded Category. | | |
| Unsupervised full-time First-Aid staff. | 34 | 3 |
| TOTAL | 106 | 59 |

The development of this conception is outlined in Chapter 18. Based upon this conception it was possible to define the sub-divisions of the work which an I.H.S. should perform, to identify the responsibilities of the doctors and nurses working in it, and to estimate the material facilities they would need to adequately perform their tasks. It was proposed to assess which of these duties, services, and facilities, were performed and provided in each of the 72 factories under consideration. This, it is admitted, would not allow an assessment to be made of HOW they were performed or provided in the context of each individual factory. To make this latter type of assessment would neccessitate a prolonged period of carefully analysed observation of the detailed working of each of the separate factory services. It was felt that, even if this were possible, the average factory management would be resistant to it. Each assessment, therefore, entailed questioning the management and Health Staff of each factory about certain specific aspects of the working of their I.H.S. and in observing the type of physical provision made for it. In this way it was hoped to reduce the amount of subjective assessment to a minimum. This approach resulted in a somewhat simplified and stark appraisal of the existing Industrial Health Services, but it is felt that sufficient points of interest were, nevertheless raised.

The full range of the information sought and obtained will become obvious during the following description. The detailed analysis of the work and facilities of an ideal I.H.S., referred to above, allowed a questionnaire to be produced for each of three different sub-divisions of the enquiry, i.e. the work of the I.M.O., the work of the trained nurse, and the type of physical provision made for the I.H.S. Each of these questionnaires was completed during the visit to the factory, and comparable information was thus obtained from each separate visit. As has been stated, the type of data collected was, for the most part, factual and the subjective element of these separate assessments was reduced as far as possible. This allowed valid summation to be made of all the individual assessments.

Briefly the information sought covered the following topics.

I. The Work of Industrial Medical Officer.

a) Personal Information.

1. Timesspent in the factory(this had already been obtained from the postal survey but this further check was made).

2. Holiday and sickness coverage.

3. Conditions of Service.

4. Main occupation(again a check on other information).

5. Distance of main surgery or residence from factory.

6. Other professional commitments.

7. Mode of appointment.

b). Environmental Responsibilities.

1. Inspection of existing processes.
2. Inspection of new processes.
3. Reports to management of environmental conditions.
4. Responsibility for suggesting environmental modifications.
5. Use of outside sources of advice for environmental problems.

c). Clinical Duties.

1. Casualty and minor ailment duties.
2. Pre-employment medical examinations.
3. Routine-return-to-work medical examinations after sickness absence.
4. Routine medical examinations of employees.

d). Administrative duties.

1. Statistical work.
2. Other advisory duties such as First-Aid Training, Health Education etc.
3. Appointed Factory Doctor duties.
4. Therapeutic facilities offered to other agencies.

II. The Work of the Trained Nurse.

Much of the information sought about the Nurse duplicates that sought about the I.M.O.. As the majority of I.M.O.'s attend for only a relatively brief period each week, it was thought advisable to estimate if, in fact, some of his work was performed, in his absence, by the nurse. In those factories where no I.M.O. was employed it was, of course, necessary to cover a fuller range in the assessment of possible services.

a). Personal Information.

1. Qualifications.
2. Marital Status.
3. Time spent in the factory together with overtime.
4. Holidays and sickness coverage.
5. Mode of Appointment.
6. Additional non-professional duties(if any).

b). Environmental Responsibilities.

This information closely resembles that sought from the I.M.O. and requires no further comment.

c). Clinical Duties.

1. Degree of medical supervision.
2. Casualty and minor ailment duties.
3. General Health supervision, including the examination of sick people going home from work, and the supervision of those returning to work after recovery from an illness.
4. Home visiting of the sick employee.

d). Administrative duties.

1. Statistical work.
2. Additional advisory duties.
3. Co-operation with external health agencies such as the general practioner, the local hospital, and the local Health Authority.

III. The Material Facilities provided for the I.H.S.

a). The Building.

Including such details as site, age, number of rooms, function, construction, decor, cleanliness, maintenance, etc.

b). Equipment.

i). Non-specific such as heating, lighting, water, sanitation etc.

ii). Specific-furniture, professional equipment, transport etc.

Some of these items involved a certain amount of subjective assessment in relation to the estimated need of the factory. This will be considered further when the subject is dealt with in detail.

The scope of the investigation.

Table shows the number of factories covered in relation to those "at risk". The biggest gap results from the omission from this assessment of the factories employing only unsupervised full-time, first aid auxiliaries. The distribution of these 34 establishments is shown by Industrial Orders and by size-groups on Table 112A .(Three establishments in this category actually were visited, and they employ 1,300 people. These were assessed during the initial period of this investigation, and before accurate information had been received, from other sources, about the true nature of the health services provided there). These 34 factories employ some 13,300 people. The majority of them are in Order VI, and overall it is the factory employing between 101 and 500 people, which is being ignored by this omission.

16 out of the 72 factories in the included categories were not visited. In the majority of instances this was due to the unwillingness of their managements to co-operate. This is particularly true of the ship-building and repairing yards. There were three factories which it would have been possible to visit if a mutually convenient date could have been arranged before the Survey had to end.

The 11 omissionsfrom the total of 48 factories employing an I.M.O. are detailed below.

| Order. | Description. | No.of employee. |
|---|---|---|
| IV. | One glue factory. | 220. |
| V. | Two lead works and a steel rolling mill. | 1,030. |
| VI. | Six shipyards. | 9,900. |
| VII. | One Aero-engine repairs factory. | 80. |

Total of establishments = 11.
Total population = 11,230.

Of the 24 factories employing unsupervised trained nurses [redacted] 19 were visited. The five omissions are detailed below.

| Order. | Description. | No. of Employees. |
|---|---|---|
| VI. | One machine-tool and one radio factory. | 410. |
| VIII. | Steel forge. | 500. |
| XII. | Tailoring factory. | 1,060. |
| XIV. | Furniture factory. | 600. |

Total factories = 5.
Total Population = 2,570.

Thus there are omitted from the categories covered by this assessment 16 factories employing 13,800 people.

In all the 106 factories, with a total estimated population of 83,460 employees, providing some form

# Table No 112A

## Establishments with Unsupervised First Aid Staff by Industries and Factory Sizes.

| Order. | Factory size groups. 11-50 | 51-100 | 101-250 | 251-500 | 501-1000 | 1001-2000 | 2001-5000 | 5000+ | Total. |
|---|---|---|---|---|---|---|---|---|---|
| III | | | | | | | | | |
| IV | | | | | 1 | | | | 1 |
| V | 1 | | 1 | | | | | | 2 |
| VI | 1 | 1 | 4 | 6 | 1 | 2 | | | 15 |
| VII | | | | | | | | | |
| VIII | | | | | | | | | |
| IX | | | | | | | | | |
| X | | | | 1 | | | | | 1 |
| XI | | | | | | | | | |
| XII | | | 1 | 1 | 2 | | | | 4 |
| XIII | | 2 | 2 | 1 | 1 | | | | 6 |
| XIV | | 1 | 1 | 1 | | | | | 3 |
| XV | | | | | | | | | |
| XVI | | | 1 | 1 | | | | | 2 |
| Total | 2 | 4 | 10 | 11 | 5 | 2 | | | 34 |

Employing a total of 13,390 employees.

of I.H.S. on Tyneside there are omitted from consideration altogether 50 establishments employing some 27,100 people.

## The work of the Industrial Medical Officer.

### I. Personal Information.

There are 22 doctors working in those 37 visited factories which employ an I.M.O. on a regular or sessional basis. (The distribution of I.M.O.'s throughout the whole range of the Survey Industries and the time they devote to various factories, as well as their commitments, have been considered already in Chapters 12, 13, and 14). There is one doctor not included, who is the full-time I.M.O. of a large and scattered industrial group, and he operates from a headquarters in London. His visits to the local factory are very infrequent, and for present purposes of categorisation this establishment is classed as employing a nurse without supervision. None of these 22 doctors is known to have benefited from any formal training in the specific field of Industrial Health, or in the broader field of Preventive Medicine. Several have, however, held senior rank in the Armed Forces during one or other World Wars, where presumabably they had the opportunity of practising some form of community medical care. Four of the doctors possess the degree of M.D. and one of these is a member of the Royal College of Physicians of London [redacted]. Apart from one of the full-time I.M.O.'s who possesses a Diploma in Child Health, all the other I.M.O.'s have only qualifying degrees or diplomas. During the holidays, or the sickness-absence of their I.M.O., some 12 of the 37 factories are without any form of medical attention, no alternative arrangements having been made. 24 of these firms have made no arrangements with their doctor for his attendance upon any emergency which occurs outside regular working hours. In most instances this seems to cause little serious difficulty in practice, but as there are few places which do not employ, at least, a regular night maintenance staff, this would seem to be an elementary arrangement which is unnecessarily ignored. Those places which, however, do work a regular evening or night shift on full productive work [redacted] have made this type of arrangement. Of more importance is the fact that 12 factories do not have any formal arrangement with their I.M.O. for him to attend during normal hours, yet outside his regular sessional time, for the pupose of managing any serious medical emergency. These factories are all served by general practitioner I.M.O.'s and the difficulties of quickly obtaining the services of a G.P. whilst he is out on his "round" [redacted] will be[redacted] mentioned. Despite this it is odd that no formal understanding has been entered into about him being, at least, potentially available on such occasions.

It proved impossible to obtain any detailed information about the terms and conditions of service of the majority of these doctors. Most of them were, naturally, rather reluctant to discuss their remuneration for this work. It was possible to ascertain this in only four instances. These may have been men who felt that they had a grievance in this respect, and who wished to air it. Nevertheless, there seems to be a wide range of variation in these four instances. Two I.M.O.'s are paid £150/annum for attending their single factories, three hours, and six hours, respectively. Another is paid £400/annum for working three hours a week in a single factory, and the fourth £750/annum for three-hour sessions in separate factories belonging to the same company. It proved impossible to obtain any moredetailed information on this topic. It would seem, nevertheless, that knowlege of the B.M.A.'s scale of remuneration for part-time I.M.O.'s is meagre amongst doctors and industrial management generally.

The mode of appointment of these doctors is interesting. It wasimpossible to discover how eight factories had appointed their M.O. In the remaining twenty-nine faatories <u>none</u> were appointed as a result of competitive selection. In twenty-four instances the employers themselves had approached the doctor, with a view to inviting him to take up the position. Eight of these approaches seem to have been the result of the doctor already being the Appointed Factory Doctor for the area where that establishment lay. In some instances the employers took the advice of the Factory Inspectcrate before making this approach. The remaining16 approaches by the employers arose from a range of situations. It seemed to be common to invite the surviving,or suceeding,partner of a genaral practice to accept the post. Occasionally the invitation was the result of social, or professional,contact between the parties. In one instance the I.M.O. as already employed by one member firm of a group of companies. The five appointments not yet considered were the result of a direct approach to the company by the doctor himself. He was, in these instances, usually the surviving or succedding partner in a general practice. Overall some eight of the whole twenty-nine appointments were the result of this type of preceding relationship.

The distance of the I.M.O.'s surgery or residence from the factory for which he is responsible is shown below.

| Distance from Factory. | No.of Doctors. |
|---|---|
| Under 1 mile. | 1. |
| 1-2 miles | 10. |
| 3-4 miles | 15. |
| 5-9 miles | 3. |
| Over 10 miles | 8. |

(These distances are based upon measurements between two points on a large scale map.)

(The table includes the five establishments which are served by the two full-time I.M.O.'s, and who are normally to be found, during working hours, within one or other of the factories for which they are responsible. Four of their factories are included in the "over 10 miles" distance group.) It would appear that companies tend to engage locally resident doctors as their I.M.O.'s

II. Environmental responsibilities.

a). Regular Inspection of existing environment and processes.

The pattern of this part of an I.M.O.'s work seems to depend upon whether he is provided with trained assistance or not. Only one of the nine factories without trained nursing staff is regularly inspected by its I.M.O.'s and this inspection was euphemistically termed by the management "a walk around". On the other hand, 12 of the 28 factories, which employ a nurse to assist their doctor, have some form of regular environmental inspection by their I.M.O. In three of these 12 places it is only those processes and conditions which the I.M.O., or the management, or both, consider to be worthy of attention, which are inspected. This includes statutory as well as non-statutory hazards. In the remaining nine instances all the processes and workplaces in the factory are inspected at an interval, which is never longer than three months, and in the majority of places is between four and six weeks. Within all Tyneside Industry covered by this Survey, it is alarming to consider that probably only 13 out of the 856 factories have the benefit of regular environmental inspections by a medically trained person. This is not to decry the work of the General Factory Inspectorate, who in their own narrow and non-biological field do extremely valuable work, and who have the specialist advice of the Medical Inspectorate to call upon, should they consider it necessary.

It is of interest to speculate upon the position of the firms that employ an I.M.O. without a trained nurse, and who are so badly served in terms of environmental control. There may be several explanations of this peculiarity. Firstly, like the 16 firms who employ a nurse, and yet do not benefit in this way either, it may be that the health personnell, and/or the management do not appreciate the value of this aspect of the work. On the other hand these factories may represent those managements whose attitude to Health in Industry, as illustrated by their unwillingness to employ trained personnel, is one of almost complete indifference. Thirdly, it may be that the employment of a nurse, who spends a longer time than the I.M.O. in the workplace, allows the discovery of the actual or potential need for regular inspection. As a result, the I.M.O. is requested to perform these inspections. This third explanation is not, however, borne out by an analysis of the work of unsupervised Nurses, who tend to carry out fewer environmental inspections than do those with supervising doctors. There is a general impression that the importance of a thorough and regularly renewed acquaintance with the working environment is not appreciated by either Health Staff or Management. When the essentially clinical background of so much of the medical and nursing staff is considered, it is not surprising that this is so. There is a real need for some intensive education to be given on this matter to those doctors and nurses employed in local industry. Once they have a greater realisation of the importance of environmental control, it is probable that industrial management will come to be educated by them in this respect also. This situation also points to the impossibility of founding any effective Industrial Health Service upon a medical staff of General Practioners, until there are opportunities for instruction in these, and other topics, readily available to them. Finally, it appears likely in the light of these findings, that there are many health hazards lying undiscovered in Tyneside industry today. If an effective means of detecting these was developed, there would probably arise a demand for the more elaborate and specialised methods of environmental investigation, which only a properly staffed and equipped Hygiene Laboratory could provide. The management of only three of the thirteen factories which are regularly inspected require their I.M.O.'s to submit a report on the environmental conditions of the establishment at regular intervals.

b). Routine Inspection of new processes or modifications of the existing environment.

The situation here is no better. All those ten factories which are regularly inspected by their doctors have, as a result, all their new and modified environment and processes inspected as well. Even here it is only in two instances that the I.M.O. is regularly informed in advance by the management about the proposed alteration. In the other eight instances, the I.M.O.'s usually first discovers the alteration whilst engaged upon one of his regular inspections. This has, in the past, lead to some avoidable difficulties, as the I.M.O. has found that the new process as planned is hazardous. A further twelve of the thirty-seven firms invite comments upon only some of their new or modified processes. In these places it is the management who decide which of these alterations should be scrutinised. This has lead, in the past, to previously unscrutinised processes being considerably modified after some incident has drawn attention to their danger.

Thus a total of twenty-two of the thirty-seven firms employing doctors have some form of inspection made of their new processes. This coverage in itself is far from complete, and the general attitude of management towards the problem leads to much wasted effort and avoidable frustration.

c). Environmental Modification for Individual Employees.

This form of care by the I.M.O. usually has its beginnings in a clinical problem, and thus the clinically orientated I.M.O. pays much more attention to this aspect of environmental control. Naturally this part of the work overlaps the two previous subcategories, and it is often the occurrence of a clinical problem which leads to the inspection of a new process, or to an awakening to the necessity for regular systematic environmental inspection. The net result is that thirty-six out of the thirty-seven factories being considered are advised by their I.M.O. about modifications of the working environment for people who present ailments, occupational or otherwise, and require this type of care. Nevertheless, in fourteen of these places it is the patient himself, or the management, who conceive it as their responsibility to request such advice in the first instance. This suggests that many of the I.M.O.'s are unaware that it is apt for them to take the initiative on these occasions. The quality of the advice given on these problems must, in the light of the two preceding sections, be suspect. It is extremely difficult for a doctor, who does not know in detail the workings of his own plant, and as a result little in general of industrial organisation and techniques, to give informed and detailed advice on these matters. As a result it must be concluded that much of the advice given willbe of a general and non-specific nature and its value, to patient and manager alike, will be very limited.

d). Use of External Sources of assistance with Environmental Problems.

In the light of what has gone before, it is hardly surprising that some 24 out of these 37 firms have never found it necessary to approach any outside body for assistance with the solution and control of environmental problems. This number of negative answers is, of course, limited by the accuracy of the memory and the length of service of the people questioned. The 13 factories, which could state that such assistance had, within these limitations, been sought are detailed below, together with the agencies which they approached.

| Assistance sought from. | No.of Factories. |
|---|---|
| Factory Inspectorate(for help with problems immediately outside their statutory limits). | 4. |
| University of Durham (in all instances the Department of Industrial Health). | 6. |
| Trade Associations(includes X-ray and laboratory facilities). | 4. |

| Assistance sought from. | No. of Factories. |
|---|---|
| Public Analyst. | 2. |
| Laboratory(of another company). | 1. |

The work of one of these external sources of assistance, namely the Department of Industrial Health, in the University of Durham, is outlined below.

Industrial Consultative Work of the University Department of Industrial Health.

This Department has recently completed a survey of the second five year period of its work. It was founded by a grant from the Nuffield Foundation, and began work in 1946. Since then it has been approached on an increasing scale, by and about, firms who have environmental problems for which solutions are sought. Some of these approaches come direct from management, and others are from the I.M.O.'s of the company. Occasionally, there is an approach made directly by the representatives of organised labour. As the Department also has clinical responsibilities in the Teaching Hospital, some of the clinical problems dealt with there, act as indices of existing environmental hazards. To help in the solution of these problems the Department has at its disposal three physicians, a chemist, an engineer, a social worker and a statistician. The two quinquennial reports of the Department illustrate the types of investigations which have been tackled since its inception, and to show some of the range of hazards that have been discovered in these ten years. The majority of these local investigations are the result of either an occupationally induced ailment, or of the anxiety of biologically untrained people. It will be realised, that when there is in existence, throughout local industry, an intelligence network of trained observers a numerically greater range of investigations will be necessary.

Much of the work of the last ten years has arisen in situations and industries outside the consideration of this investigation. Because of this, and of the period of time over which this work has been carried out, it has been impossible to correlate the work of the Department with the statistical findings of this Survey.

III. Clinical responsibilities of I.M.O.'s.

a). Casualty and Minor ailment duties.

Much of the detail, in this range of the work, is performed by the nursing and auxiliary assistants of the I.M.O.'s. The work of the I.M.O. in these instances is confined to seeing those cases which actually arise during the period of his visit, or those which have occurred at some other time, and have been referred for his opinion by his assistants. This part of any I.H.S. is complicated by the ethical considerations mentioned in Chapter 19.

Some 11 of the 37 factories employing I.M.O.'s do not require him to attend to this type of work at all. All of these are small concerns who prefer to send their patients to the nearest hospital, or to their family doctor, should the condition be beyond the scope of the nurse or auxiliary. This policy applies in these factories to ALL ailments needing medical attention, and not just to the emergencies which occur whilst the I.M.O. is not in attendance. Naturally, it is almost impossible for these companies to enforce their policy rigidly, and there often occur situations where it is easier for the I.M.O., if he is in attendance, to dealt with the conditon on the spot. The aim of the 11 firms seems to be to prevent the facilities which they provide from becoming an expensive duplication of the National Health Service. These managements consider that the State, having taken the responsibility for the care of the sick and injured, should then bear the expense of any, but the most rudimentary, care that is needed. It is in an over-enthusiastic attempt to prevent their companies from bearing the expense of becoming minor hospital casualty departments, that these managements attempt to curtail these functions of their Industrial Health Service. In many instances the result would appear to be more costly to them, in terms of lost time, and product, than it would be if they allowed some common-sense relaxation of this rigid position. The attitude of some of these firms smacks very much of cutting of the companies' nose to spite its corporate face. Furthermore, as it usually is the company with this attitude who also cannot see the need for any environmental control, it is a source of wonder that these self-styled, hard-headed men have ever seen the need to provide any form of I.H.S. at all. The benefits they gain from their Service under these circumstances, if there are any, are very small indeed.

In the 26 factories where the I.M.O.'s do undertake these minor diagnostic and therapeutic duties, the majority of doctors confirm strictly to the ethical position as described. Most of these I.M.O.'s are general practioners themselves, and they are acutely aware of the difficulties which ~~arise~~ follow when conflicts about clinical responsibility arise, and they strive to avoid them. There are occasional glaring exceptions. Where a wealthy company has sufficient resources to provide elaborate treatment facilities, and considers that it is worth its while to do so, then an I.M.O., if he wishes, has opportunities to undertake work that is completely beyond the true range of his functions. This, as explained, should not preclude him offering certain facilities to the family doctor, if as a result, the patients recovery and return to work is speeded. Where there is an attempt to provide a range of therapeutic and diagnostic facilities, which can only find their true and effective use in the hands of appropriately trained clinicians or technicians, then it is considered that the patients', and the firms', interests are being sacrificed to the I.M.O.'s enthusiasm. On Tyneside there are two examples of this situation. Both occur in companies which can afford to provide lavish facilities, and presumably and misguidedly, consider it worthwhile to do so. In one of these factories a full-time, first-aid attendant, has at his disposal a small diagnostic X-ray plant, a fully equipped physiotherapy department, and an electrocardiograph. Despite the fact he is supervised by a highly qualified I.M.O., he appears to be encouraged to make unfettered and liberal use of all these instruments. In a second group of factories, the equipment of the "clinic" is more elaborate still. A completely equipped physiotherapy department is, admittedly, supervised by a qualified physiotherapist, and it appears that much of the treatment given there is with the consent tacit, or actual, of the family doctor. The full time I.M.O. has at his disposal a large diagnostic fluoroscopy unit, an electro-cardiograph, and a well equipped operating theatre. The type of work which he performs in this theatre is completely beyond the bounds of the true functions of an I.H.S., particularly so, as adequately equipped and properly staffed hospitals are at hand. When it is considered that this doctor claims to do personally much of the technical laboratory work needed for his environmental investigations, it is doubted that anyone person can be adequately proficient in such a wide range of skills. Under these circumstances it is the patient who suffers from this supposed ubiquity.

b). <u>Pre-employment medical examinations of new employees.</u>

Only three of the 37 factories employing medical officers, do not require them to perform routine medical examinations on all, or some, of their new employees. All of these three exceptions are shipyards, and they presumably do not insist upon this owing to the peculiar transience of shipyard labour in any one yard. This has already been referred to in Chapter 8, page 61. Of the other 34 factories, 21 insist upon <u>ALL</u> new employees being medically examined before starting work. The remaining 13 factories only require a selected proportion to be examined. These specially selected groups are chosen according to widely differing criteria. Thus 7 firms insist that all juveniles under the age of 18 are examined, regardless of the fact that in these places this is also done by the Appointed Factory Doctor. These companies evidently consider that this step is worthwhile. Another four companies insist, that only those who are likely to be exposed to those certain hazards, which cause the management anxiety, need be examined. In three instances only those members of the staff who are eligible for the companies non-contributory pension are examined before employment. In one factory the newly engaged executives above a certain level of responsibility are physically assessed, before formal appointment. In the final single instance the Personnel Officer of the firm pre-selects those new employees about whom he considers a medical opinion is necessary. It will be noted that some firms have multiple criteria for pre-employment examinations. As will be seen, when the work of the nurses is described, there is a considerable amount of pre-employment inspection done by nurses. Often this is a duplication of the I.M.O's work but it is of a much more cursory nature. These duplicate inspections allow the newly engaged person to start work at once, under a temporary engagement on the understanding that the I.M.O.'s assessment will be made when he next attends the factory.

None of the 34 factories require the I.M.O. to make specific or general routine recommendations about the optimum work-place for each individual new employee. All the employing company ever requires is a clear statement as to whether the person is fit to be employed in a certain category of occupation. Even this latter qualification is only rarely imposed. It is difficult to see that the majority of I.M.O.'s could make more than a vague general reference as to the suitability of a man for a particular job, or of a particular job for that man, as their lack of knowledge of the working environment is so great.

c). Return-to-work medical examination after sickness absence.

The need for some type of post-sickness assessment of the worker, before he is allowed to return to his normal job in the factory, is considered in detail in Chapter 19.

None of the 37 firms consider it necessary for their I.M.O.'s to, routinely, see all people who have been absent from work due to illness. Much of this part of the work is done by nurses, where these are employed, and this is considered later. It would naturally be a great waste of medical time if all sick-absentees were medically inspected upon return to work, and some form of "screening" mechanism has been developed by many firms. 10 firms, however, do not require their I.M.O.'s to do this type of work at all. The screening criteria in the remaining 27 firms vary, and some have them multiple criteria and mechanisms. In nine of the twenty-eight factories employing nurses to assist their I.M.O., it is the nurse alone who selects which of the returning absentees should see the doctor. In another seven of these twenty-eight factories, she and the personnel department either jointly or separately screen the patients. This type of arrangement tends to work extremely haphasardly, and there is little system in the method used in any of these seven factories. As could be expected under these circumstances, the criteria of selection are usually subjective rather than objective. In three of the factories employing trained nurses, it is the Personnel Department which is alone responsible for this selection, and in all those employing unassisted I.M.O.'s this is the procedure used. In a single instance a first-aid auxiliary selects the returning absentees for medical inspection. The exact criteria used in this latter instance were also difficult to determine.

Only four firms were found to have any purely objective criteria for this screening, and in all of these place the criteria were rigid and too narrrowly drawn. Only one place required all juveniles and people over sixty years of age to be seen by the I.M.O. on return. In another factory all those exposed to certain hazards were routinely seen on return. The third factory required the I.M.O. to see all those who had been absent for over 6 weeks, and in the fourth establishment he saw all those who had been absent over one week. In all these instances the policy was applied regardless of the cause or length of absence.

Overall several impressions were left by this section of the enquiry. Most firms seem to recognise the necessity of employing their I.M.O. in this manner, although their motives may well be mixed for doing so. The need to conserve valuable medical effort by some form of selection procedure is also admitted. There is some variation in the procedure and criteria chosen. In only a minority of places where a nurse is also employed, is she allowed sole responsibility for this selection. Where she shares the responsibility with the Personnel Department, there seems to be wide scope for confusion of purpose, and conflict of method. When untrained people alone select the returning absentees for medical examination, the criteria used are rarely rational ones. In the few instances where a company policy has been stated on this matter, there is some inflexibility, and often the criteria chosen are based upon broad general principles rather than upon specific points. This rigid method is only in use where the selection is made by untrained staff and in these circumstances it is an improvement upon no stated criteria at all.

In all cases the initial source of information, about the reason for the patients' absence from work, is either the National Insurance Certificate of the "sick-note" which the firm requires from the family doctor for disciplinary reasons. This information is usually meagre and often so vague as to be possibly misleading. The accuracy of selection, even under the best circumstances is thus considerably handicapped. Whilst there is a need to preserve the confidentiality of the relationship between the patient and the family doctor, there is obvious room for improvement in this situation. It is necessary, for example, in many instances, to keep confidential the true nature of the patient's illness, often even from himself. It would, however, be in the patient's best interests, should he return to work, for some closer co-operation, within the ethical bounds considered elsewhere, to be established between the family doctor and the I.M.O. Only on rare occasions could the health staff of a factory recall the family doctor, voluntarily, providing the information needed to allow an intelligent resettlment of the patient. Even when the more diligent factory Health Personnel sought extra information to help them with this task they were often rebuffed for supposed ethical reasons. It is suspected that often these rebuffs were the result of a misunderstanding, on the part of the family doctor, of the true nature of the motives of the enquiror. This mistrust would, in part, be removed if general practioners had a closer acquaintance with the industrial scene. More part-time I.M.O. appointments for G.P.'s would help in this, these, however, will always be relatively limited in number. An effort by both parties to become better acquainted, through visits by doctors to factories, would greatly improve the present situation. Those more enlightened employers, who value the benefits which their I.H.S. provide for their employees and themselves, realise that their efforts in the field of Industrial Health are, at present, being considerably hampered by these very frequent misunderstandings.

d). <u>Routine medical examinations of employees.</u>

The final place of the routine medical examination in an ostensibly healthy population is at present uncertain (Chapter 19). This may account for the fact that none of the 37 factories consider it worthwhile to have them performed on <u>all</u> of their employees. The commonest interval between such examinations is a year, but one company insists upon certain higher grades of executives being examined six-monthly. In 12 establishments these examinations are made compulsory for certain groups, and employment is accepted by the affected persons upon these conditions. Again there are varying reasons for carrying out these selective procedures. Nine factories specify that employees engaged upon certain hazardous processes should be so supervised. These include all those factories which insist upon pre-employment and return to work examinations for this reason. In three factories the juveniles are annually examined, despite the fact that this is a duplication of the work of the Appointed Factory Doctor in these factories. A single factory, already mentioned, routinely examines certain higher executives. Another place insists that certain of its workers, engaged upon a delicate inspection process, have a detailed and rigorous visual-acuity test annually. In a final establishment, the nurse is given the responsibility of selecting for routine annual examination any employee about whom she is concerned. In this instance the examinations are often discontinued after a period of time.

The motives behind the insistence of employers upon this type of examination are mixed, and often more than one reason was given. In twelve instances the fitness of the employee for the job was given as a reason, for reassurance of the employee in another eleven, only in six instances was the protection of the firm from legal consequences mentioned as a motive for the procedure.

## IV. Administrative Duties.

### a). Statistical Services.

The work of the statistical aspect of an I.H.S. can be roughly divided into three components. First, the maintaining of individual clinical records for each employee, which contain such pertinent details as may be collected about him through the operation of the I.H.S. Second, the compilation of data about the work of the I.H.S. for internal and external administrative purposes. Third, the use of a combination of both these preceding types of record as an epidemiological method of detection, and solution of health problems. It can be stated at once that in the 37 factories under consideration, none at all make use of the statistics which they compile in this latter way. As the use of records as an epidemiological tool should be an important, if not the primary reason, for keeping them, there is a serious gap here in the existing health provisions of Tyneside industry. This fact reinforces the earlier statement that before any larger I.H.S. for the region can be effectively established, some education facilities must be provided, for the potential I.M.O.'s and nurses of the service. There is little, if any realisation that the voluminous amount of record-keeping that is done in local industry has anything other than an immediate clinical or administrative purpose. It is submitted that at present much of this statistical effort is being wasted through misapplication.

The commonest form of recording is in a simple, lined, day-book, and each item of service is entered as it is given. For administrative purposes these are summated in different ways, at different intervals, and some form of report is prepared. Many smaller firms would find too great the expense and labour involved in adding to this system an additional system of personal records. It would, however, probably be more rewarding for them to maintain this latter type of record in preference to the type they use at the moment.

Only 19 of the 37 firms keep any form of individual health record for each employee. The use made of the data which is collected, varies greatly, as does the actual type of analysis which is made of the raw information. In 10 instances the I.H.S. is responsible for the production of sickness absence analyses. The complexity of these analyses varies greatly from place to place. All produce some form of sickness-absence-rate but none produce any breakdown of absences by diagnosis of the causative illness. Some four companies insist that this data be produced by groupings of the length of absence.

Altogether, there are 26 firms which collect any data at all for presentation as statistical tabulations. Apart from the ten mentioned above, they all make their data referrable only to the internal workings of the health department. There is no statistical attention paid by the I.H.S. of any of these 16 factories to the sickness-absence of their employees. All 26 factories present the work of the I.H.S. in terms of the diagnosis of the cases treated by it. The diagnosis used is that stated by the attendant, either nurse or auxiliary, or by the I.M.O, depending upon whom sees the patient. In only two instances is this data tabulated according to a recognised diaghostic coding. In 18 factories a diagnostic grouping of their own devising is used by the health staff. In the remaining six places no standard tabulation of diagnoses is attempted. The information is presented by the latter factories in a haphazard fashion each time an analysis is made. In only 11 firms out of the total of 37 is any attempt made to analyse the treatments given in the departments. All 11 factories record the type of the initial treatment, nine record subsequent treatments, and four record and analyse the therapeutic part of their work by the length of the treatments given. None estimate and record the result of their therapeutic efforts.

Of the 26 factories providing statistical services, only 21 report regularly to their managements on the data which is kept. The remaining five present reports when the management call for them. Sixteen of the 21 factories produce monthly reports, four annual ones, and a single establishment produces a weekly tabulation of its work.

In 24 of the 26 instances the records are compiled and analysed by the nurse or auxiliary in charge, in the other two factories specific clerical help is provided for the task. In no instance does the I.M.O. direct this work, and in only one instance does he intervene to request that certain points, that have been raised by the original analysis, be investigated further. It is interesting to note that no statistics are tabulated in any of the five factories where I.M.O.'s are employed without any form of assistance.

It will bear reiteration that much of the effort being put into the compilation and presentation of medical statistical data in Tyneside industry is being misapplied. This is due to a complete lack of appreciation of the value of such data when it is properly compiled and analysed. This in turn is due to the lack of knowledge about the appropriate techniques and methods. Almost all the I.M.O.'s are antipathetic towards the subject, and until some interest can be aroused, and knowledge applied, this waste of effort will continue. The information which is kept and presented seems solely to be focussed upon demonstrating to management, the diligence and effort which the various medical departments bring to the therapeutic aspect of their duties.

b). Other advisory duties.

Under this general heading are included some of the health facilities of the factory which do not fall within the categories of service considered elsewhere. These are those specific aspects of the advisory duties of the I.M.O. which have been recognised as being within the legitimate province of an I.H.S. (See Chapter 19). 21 of the 37 firms visited did not expect, and did not receive, any services of this nature from their I.M.O. In all these instances it had either never occurred to them to seek his advice on these topics, or the need for his advice on them had never arisen.

The 16 firms where the I.M.O. regularly gave, or was asked for, advice, received his help with a number of topics. It was most often sought in 14 places in matters connected with the companies' canteen. Often it was about the food to be served there, but more frequently about matters of hygiene, particularly with reference to recent legislation on the subject. Another ten firms relied upon their I.M.O.'s to give them advice upon recent health legislation, particularly upon that coming under the broad coverage of the Factories Acts.

In 11 factories the I.M.O. had responsibilities connected with first-aid training. This instruction was usually given to that cadre of people "trained in First-aid" that the Factories Acts demand of the firms. Many of the firms still encourage this training, despite their present exemption from these statutory requirements. It is interesting that of those five factories which did not employ any type of full-time assistance for their I.M.O.'s and which, presumably, still have to comply with these statutory requirements about first-aid personnel, only one required its I.M.O. to give first-aid instruction. In those eleven factories where the I.M.O. had these first-aid training duties, it was usual to find that he was also responsible for supervising the maintenance and provision of the necessary First-Aid equipment throughout the factory. In many instances these duties were delegated to his full-time assistant. In the factories where the I.M.O.'s undertook this training, only three attempted to encourage their classes to take any of the proficiency examinations of the First-Aid Associations. In the three shipyards which were visited, it was found that there was a considerable enthusiasm for first aid work, and there was a steady flow of recruits for the training. The men were keen and willing to take the proficiency examinations. There has always been a communal feeling in this hazardous industry that the undertaking of these duties was a responsibility to be willingly borne. It was only in these yards that no difficulty was being experienced in the recruitment of new people to undertake the work. It is all the more interesting, therefore, that in the three yards concerned the I.M.O.'s were not encouraged by the men to undertake any training duties. The men preferred to attend the headquarters of the local St. John's Ambulance Brigade to obtain their training.

In a further nine factories the I.M.O. undertook or supervised his assistants in the provision of facilities, which can be broadly classed under the heading of Health Education. This was undertaken in detail mostly by the nurses, and the methods used were largely the passive ones of exhibiting posters. The commonest subjects dealt with were accident prevention and the use of safety appliances. Finally in two foundries, the I.M.O. was responsible for ensuring that the lavish bathing facilities provided for the employees were properly maintained and used.

c). Concomitant Appointment as Appointed Factory Doctor.

Of the 37 factories employing an I.M.O., 24 had been permitted to have their own doctor perform the statutory duties assigned to the Appointed Factory Doctors (A.F.D.) under the Factories Acts. (Five doctors, who attended ten of these factories were already the A.F.D.'s for the surrounding areas). There appeared to be a lack of awareness by both management and doctors that it is the present day official policy to allow these dual appointments to be made. Some unnecessary duplication of effort and a much easier administration would result if these dual appointments were more general. It was impossible to discover whether the Factory Department actively encouraged such appointments or merely profferred advice if it was sought, and then concurred in the application when it was made. As will be seen the Dale Committee recommended that, where possible, the work of the existing I.M.O. and the A.F.D. should be merged to save unnecessary duplication.

d). Facilities offered to other Health Agencies.

Within this section will be considered those facilities which the I.H.S. of these 37 factories put at the disposal of the employee's family doctor, the Local Health Authority, and the local hospital. The willingness of the employers to allow the health services which they provide, to be used in this way will also be discussed. Obviously if a man is being kept off work, and losing his pay, and the employer his production, merely because the treatment, or supervisory care, he needs is not available at work, neither the best interest of the patient nor industry are being served in this situation. Where, therefore, facilities for giving this care, are available in the factory, it would seem reasonable to put them at the disposal of the patient through the medium of the doctor who has clinical responsibility for his ailment.

Some nine employers, who employ I.M.O.'s, do not allow their facilities to be used in this way. As five of these do not employ any other health staff the range of facilities they could offer are limited. The other four refusing employers all, however, employ trained nurses, and the logical reasons for their attitude are not at all clear. In all these instances these managements are bemused by the danger of allowing a duplication of the hospital casualty department to grow within the factories at their expense. This attitude has already been considered.

The range of facilities which the managements of the remaining 28 factories put at the disposal of external agencies is wide. It is interesting to note that only 11 of these factories spontaneously offer the use of their facilities to outside doctors at the time the patient is referred to them, or at some other convenient moment. The remaining 17 factories are content to wait until the outside doctors approached them for assistance. Under these circumstances, the universal complaint that little co-operation is received from outside agencies is quite understandable. The quality and type of care available varies greatly between different factories. The G.P. or the Casualty Officer is rarely liable to know that firm A has a well equipped medical department, staffed by trained nurses under medical supervision, which can undertake a complete range of minor treatments; or that firm B has an unsupervised, untrained "Nurse" in a badly equipped and squalid little room, who should not be trusted with any form of delegated treatment whatsoever. If the doctor with the clinical responsibility has not got adequate information about the factory facilities available to him, he tends to err on the cautious side, and keeps the detailed control of the case in his own hands. If he has no way of assessing what facilities will be available to his patient in his workplace, then these facilities will never be used by him. The mere profferance of this aid by the firm will not, in itself, be enough recommendation for most conscientious doctors. The fact that such a profferance is made by the I.M.O., or, at least, by a trained nurse should reassure the referror to some extent about the quality of the care which his patient will receive there. Perhaps the final answer to this lack of co-ordination will only come from personal visits of local doctors to factories in their area. These will show them just which of these establishments have something to offer towards the care of their patients. Whilst so many factories continue to take their present passive attitude to this situation, they cannot justifiably complain of lack of co-operation.

All the 28 places, which are willing to offer their services in this way, state that they have, in the past, provided facilities for both general practitioners and hospitals. Only six of them, however, state that they have had any request for assistance from the staff of the local Public Health department. These latter requests, somewhat naturally, all come from District Nurses. There seems to be a greater need to increase the awareness about these facilities by the local Public Health staffs than that of any other external agency.

All 28 factories state that they are willing to provide simple dressings and redressings of wounds for all external agencies. 27 state that they are willing to give injections for outside sources. These included all the places where S.E.A.N.'s and first aid auxiliaries are employed. If these two types of staff do not give injections themselves, and they should not be allowed to do so, it would seem that only the I.M.O. could provide this service. As he usually attends on a weekly sessional basis such a facility is of limited value.

Beyond providing these elementary facilities, a total of 19 factories offer other types of assistance to outside doctors. All of them provide radiant-heat treatment upon the doctor's request. Three factories offer the use of their X-ray plants, one for simple diagnostic examinations of digits and limbs, the other two offer a fuller range of diagnostic X-Ray examinations, as they possess a large fluoroscopy unit between them. These same three factories offer the use of two fully equipped physiotherapy departments, although only the two large units using the same facilities have a qualified physiotherapist in charge, under the supervision of their full-time I.M.O. Another three factories have less fully equipped physiotherapy departments, but the first-aid attendants in charge of all of these, hold themselves out to provide simple heat and massage treatment. These three men have all, at some time or other, been associated with sporting activities such as boxing or professional football, and they make use in industry of the knowledge and experience they gained there. Those places which employ a Dentist, and/or a chiropodist, allow these personnel to be used at the discretion of the family doctor, as well as under the direction of their own I.M.O.'s. Finally it is not unusual to find in a small number of factories, full-time, first-aid personnel, providing facilities for the employees which can only be described as quasi-medical. These consist of selling, on a commercial basis, various items such as patent remedies, toothpaste, shaving requisites, and even, in one establishment, contraceptives. If there is need for such a service to be provided by management, the Health Department is not the place for it.

Conclusions and Summary.

The training of doctors employed in industry would seem to be in need of some thorough reorganisation. Adequate training facilities which are, at present, lacking, must be provided before any attempt is made to set up an I.H.S. on a regional basis. This would in part remove the present very poor service given to the employing firms in such matters as environmental control, job-adaptation, and re-settlement for the individual, and medical statistics. Only education, about the true nature of their functions, of the professional people responsible for running the I.H.S. of a factory will allow these grave deficiencies to be remedied. The present lack of formal training throws the individual I.M.O. back upon his own resources of education and imagination. In most instances his approach to the subject is limited by his essentially clinical bias. In this way the lay management of factories have themselves developed a very restricted concept of what the true nature of an I.H.S. should be.

There is considerable need to increase the knowledge, understanding and confidence of the National Health Service staff about the aims and methods of those companies which provide an I.H.S. At present health personnel outside industry work in almost complete ignorance of, and isolation from, the efforts of those within the factory who attempt to maintain the health of the employees. The initiative to improve this situation would probably best come from industry itself.

Whilst in some industries and factory size-groups, the quantity of medical attention is greater than in others, the QUALITY of medical care throughout most of Tyneside's industries and factories is in need of great improvement.

## The Work of the Trained Nurse in Industry.

There are a total of 65 trained nurses working in the 28 factories where I.M.O.'s are also employed, and 20 nurses employed in 19 factories without medical supervision. The work of these 85 nurses will now be considered. As much of the work of those nurses with medical supervision has been considered, in the previous section dealing with I.M.O.'s, attention here will be largely focussed upon the unsupervised nurses.

### I. Personal Information.

a). Qualifications. There are altogether 51 S.R.N.'s and 34 S.E.A.N.'s working in these 47 factories; 14 of the S.R.N.'s and 6 of the S.E.A.N.'s are unsupervised by I.M.O.'s. Six of the S.R.N.'s hold one, or other of the Industrial Nursing Certificates, but only one of these ladies works unsupervised by a doctor.

b). Marital Status. It was impossible to discover the marital status of 40 of the 81 female nurses. These "unknowns" were either off duty at the time the factory visit was made, or they were subordinate staff in large Health Services about whom this information was not readily available. Of the remainder 23 were married, and 18 of them were unmarried. Despite the large number of "unknowns" an impression was gained that work in Industry is more popular with married nurses than are many other forms of nursing. Employers remembered that where the post had been advertised, a major proportion of the replies had come from married women who wished to turn to this form of nursing. The proportion of married women in Industrial nursing on Tyneside, even assuming that all the "unknowns" were single women, is a remarkably high one. A combination of regular working hours, plus freedom in the evenings and at the weekends, seems to be attractive to the married nurse. This allows her to be at home at the same time as her children and husband. It must not be forgotten that the lack of rigid discipline, and hard physical work, in industry as compared with hospital, is also a considerable advantage in the eyes of many of these, often more mature, ladies. If this attraction is widespread it may be possible to staff a future regional I.H.S. with a high proportion of married nurses. Many of these are at present unemployed, and yet whilst wishing to return to some form of professional activity, are unwilling to work in hospitals. This would prevent a drain being placed by a Regional I.H.S. upon the resources of younger unmarried nurses, whose field of work should continue to be in the hospitals, where they are in such short supply.

c). Working Hours. All, apart from two, of the 85 nurses, work full-time in industry. The other two, both S.R.N.'s work part-time, one on the morning, the other on the evening shift. Both are married. The difficulty about the accurate estimation of the working hours of nurses has been previously discussed in Chapter 12, page 111. More detailed attention will be paid here to shift work, and to these extra hours which nurses work over and above their normal eight to nine hour day. In 4, of the 19 establishments where the unsupervised nurses are employed, overtime is regularly worked by the nursing staff. In this extra time they cover the working of an extra four hour shift of the whole plant. In 8 of the 28 factories which employ I.M.O.'s as well as nurses, similar arrangements apply. In another 5 establishments of these 47, overtime is worked on an irregular basis as extra production is only needed at certain times, such as before the Christmas Season, or before the summer holidays.

None of the 20 unsupervised nurses work on a rotating shift basis. These ladies are largely employed by the smaller plants which rarely need to work longer than standard daily hours. Of the 28 factories where an I.M.O. is employed, 10 work on a rotating shift basis. None of the female nurses employed there are, however, employed on the night shift, which extends over the small hours of the morning. In these factories the night shift is covered by either trained male nurses, or by full- or part-time first-aid male auxiliaries.

d). Holiday and sickness coverage.

As could probably be anticipated the unsupervised nurse who usually works in a smaller plant less rarely has a substitute on these occasions, than does the nurse who works in the larger factory which also employs an I.M.O. Of the 20 unsupervised nurses 8 have no substitute. In 2 factories a part-time nurse is able to cover in her absence. Only one factory considers the absence of its nurse of sufficient importance to specifically arrange for a locum tenens trained nurse to be employed. In the remaining 9 instances either a full- or part-time first-aid auxiliary, or the Personnel Officer, fills the gap. On the other hand 23 out of the 28 factories which employ an I.M.O. arrange for some form of regular substitute to be employed during these periods. In 18 of these places it is a full-time colleague of the I.H.S. who does this duty. In another 3 instances a part-time first-aid auxiliary acts as a substitute.

e). Emergency Medical Coverage.

Of the 28 firms employing I.M.O.'s 17 do not make any formal stipulation that the I.M.O. should hold himself, at least potentially, available, should a serious medical emergency arise in the factory. Of the 19 places without a regular I.M.O., some 15 are similarly without any medical emergency aid. In all these 32 instances, the patient is sent as rapidly as possible to the nearest local hospital to receive medical attention. These policies do not, of course, preclude the possibility of a local general practitioner being summoned if this removal cannot be brought about sufficiently quickly. Four of the factories with unsupervised nurses have arranged with the local A.F.D. to be "on call" for emergencies.

f). Mode of Appointment of Nursing Staff.

It was impossible to discover how the nursing staff were appointed in 10 of the 47 factories. In 30 instances the position was advertised in the press and/or professional journals. In all these instances the appointment was fully competitive. The employers of two establishments made a specific approach about the job to either the nurse herself, or to the matron of the local hospital; in another two instances the nurse herself approached the potential employer. In none of these four factories was the appointment the result of competitive selection. A final mode of appointment used by three factories was the local Nursing Appointments Bureau of the Ministry of Labour.

In all 37 factories the nurse was interviewed, whether the selection was competitive or not, before she was formally appointed.

Many of those firms which had advertised the post had received an embarrasingly large number of replies, and some had interviewed as many as 15 nurses before they made their final selection. All firms which used this method of notifying their vacancy agreed that they had an ample selection of candidates to choose from. The mode of selection and appointment of nurses is thus much more open and competitive than is that of the I.M.O.'s.

Only a few firms with I.M.O.'s obtained their help in making their selection. The Nursing Appointments Bureau presumably exercises some form of skilled selection, as to ability and qualifications, before they recommend candidates for these jobs. Of those firms which did not use this method of appointment, the majority used vague general criteria to determine and assess the qualities which they were seeking in their nurse. Even the large national corporations which have nursing services elsewhere in their organisation did not seem to consider it worthwhile to include any professional nursing representative on the interviewing panel. The four large local firms, who have their industrial nursing services centred on Tyneside, always, however, left the choice of new nursing recruits to their I.M.O. and their senior nurse.

g). Other Non Professional Duties.

It was often difficult to assess whether those additional duties, which many firms insist their trained nurses should perform fell outside the true bounds of Industrial Nursing. It was finally decided that those duties which did not fall within the functions of an I.H.S., as outlined in Chapter 19, should be classified here. Using this criterion, it was assessed that 41 out of the 47 factories did not require their nurses to perform any of this type of duty. In the 6 others there was a range of these extra functions which she was expected to perform. In 3 instances the nurse acted as the Personnel Officer of the factory, in addition to her other duties. In fact one of these ladies was expected to be all things to all the 850 women employed in the plant. She was in addition the Safety Officer of the works, and seemed to do a great deal of social work among the younger girls. It must be added that, on a purely subjective assessment, she managed all these duties with consummate skill and humanity. In 2 further factories the nurse, whilst not the appointed Safety Officer, did have the responsibility of servicing and maintaining the safety equipment of the plant. Again one of these 2 ladies had other duties to perform. She was the secretary of the works Sick-Benefit scheme which was organised and run purely by the employees themselves. This involved her in a fair amount of home visiting, and social assessment. In only one factory was the nurse required to perform routine clerical duties, which had no relation to her work in the I.H.S. at all. In this instance the nurse cared for only 180 employees, and was obviously under employed. The light nature of the work, combined with the good environmental conditions of the factory, did not make her purely nursing duties very onerous.

It would seem from this investigation that there is little diversionary employment of trained nurses in industry. This does not of course mean that all the nurses are fully employed during their working hours. This is far from being the case. Whilst it was considered impossible to make any objective assessment of this point, during the Survey, a firm conviction was felt that many of the nurses visited, both supervised and unsupervised, were in fact badly under-employed during their working hours. In the majority of instances there was ample professional work for them to do. Either their training did not allow them to recognise where their true duties lay, or the management was similarly ignorant about their full practical functions, and could not, or would not, direct their efforts into the proper channels. It was also felt during an occasional visit that the nurse herself was unwilling to attempt any fuller professional life, and that she was content to lead this comparatively leisurely existence.

The above situation reinforces what has been said already. The professional staff, and as a result the management, do not realise the full potentialities of an I.H.S. This can only be achieved by the provision of adequate educational facilities for them.

II. Environmental responsibilities.

The pattern of work of these nurses who are unsupervised by I.M.O.'s, and those who are supervised, could reasonably be expected to be different when environmental responsibilities are considered. It may have been supposed that the unsupervised nurse would attempt to perform some of that portion of the environmental work which have been normally performed by the I.M.O. In fact, as will be shown she did not do so.

a). Regular Inspection of Processes and Environment.

In only 4 of the 19 factories where unsupervised nurses are employed are regular environmental inspections of ALL processes performed. Of these 4, 3 are monthly, and the other is a weekly inspection. In the places employing I.M.O.'s as well as nurses some 8 of the 28 places have regular environmental inspections by their nurses. These are all done in those factories which do not have this type of inspection by their I.M.O.'s. Three of these factories, where nurses regularly inspect the environment, are amongst those which ask their I.M.O. to inspect only their specifically hazardous processes. All these 8 factories are inspected monthly by their nurses. There are no factories, in either the "supervised" or "unsupervised" categories, which are only partially inspected by their nurses.

b). Inspection of New or Modified Processes or Conditions.

Seven of the unsupervised nurses inspect this type of alteration in the working environment of their factories. Only 5 of them are regularly asked to advise upon the changes, the other 2 always wait until they are asked to make comments upon them. Of the 12 who never inspect any alterations, one made the significant statement that although she knew of the changes, she was "never asked" for her opinion on the matter. This lady is the single unsupervised nurse with specific Industrial Nursing training.

In the 28 factories where I.M.O.'s are employed as well as nurses, the nurse is never acquainted of these changes in 16 factories. In 9 of these, however, this work is done by the I.M.O. and has already been described. In the 12 factories where the nurse performs this type of work, only in 9 does she inspect all the new changes; usually after they have been introduced. In the other 3 places she sees only those changes which the management are anxious about. In some instances, it is the I.M.O. who is asked to give the advice and in other instances it is the nurse, there does not seem to be any logical system applied here.

c). Advice on environmental modifications for individuals.

The nurse in industry, like the I.M.O., is readier to undertake this type of para-clinical work than the more specific preventive work considered above. Ten out of 19 "unsupervised" factories have this form of service from their nurse. This is somewhat lower than may have been reasonably expected by comparison with the doctors. In most instances it seems to be the result of the attitudes of particular managements to this part of the nurses' work. Many managements consider that the place of the nurse is in the surgery. Some of them genuinely cannot conceive of her being able to perform anything other than the treatment of minor ailments. In a few instances, although her potentialities in this respect are partially realised, it is considered that to allow a nurse free scope upon the factory floor on matters such as this, is tantamount to reducing the orderly running of the factory within a very short time, to complete anarchy. This timorous approach by the management often accompanies a restrictive and hesitant attitude to a whole range of other medical and non-medical topics.

In the 14 "supervised" factories where nurses are allowed to do this work, their duties are usually confined to making interim arrangements until the I.M.O. revisits the factory in the following week. In the other 14 "supervised" factories, the nurses are not allowed to attempt this type of work, usually as a result of the managerial attitudes noted above. In 2 of these places this work is, however, performed by the I.M.O.

d). Regular reports on Environmental Conditions.

In all four "unsupervised" factories where any environmental control is attempted, the nurse is required to report regularly, and formally to the management upon the environmental conditions. In the "supervised" factories only one plant is the subject of such regular reports by the nurse.

Conclusions.

The unsupervised nurse, to a slight degree, attempts to compensate for the lack of environmental control by an I.M.O. In those factories with I.M.O.'s, the nurse also, to a roughly similar degree, attempts to fill any gap the I.M.O. leaves in this supervision. The efforts of these nurses depend upon two essential circumstances. She must, herself, be sufficiently interested in the work, and aware of its potentialities, to attempt to fill this deficiency by her own efforts. Secondly she must have a like-minded managment who is willing to allow her, if not actively encourage her, to take these steps.

III. Clinical Responsibilities.

a). Casualty and Minor-Ailment Duties.

ALL nurses, supervised or not, carry out these duties. All managements of all the 47 factories concerned agree that they consider this to be the primary duty of the Occupational Health Nurse. Even those who admit that she may have some other functions to perform would place these, in importance, a long way behind this therapeutic aspect of her work. It is not thought that this topic calls for any comment additional to that which has already been made elsewhere. It was not possible to assess to what degree, if at all, these nurses tended to overstep the bounds of true nursing, and attempted to perform duties properly within the sphere of qualified medical practioners. However, no instance of this type of error was observed during any of the visits.

b). Routine, pre-employment physical inspections.

Of the 19 factories without I.M.O.'s the nurse is responsible for routinely inspecting new employees in 11. In 8 she inspects ALL new employees, but in three of these 8 places her attention is specifically concentrated upon assessing their visual ability for the type of work being done there. In the 3 remaining places she only inspects those people, whom the Personnel Department consider to be in need of assessment before they are actually engaged.

By the very nature of her training the nurse can only make a somewhat limited assessment of the state of a person's health, and of their suitability for employment. It is not surprising, therefore, that in no instance is she required to make recommendations about a specific type of job for the new employee, or to place limitations upon his activities. Her advice is confined to merely stating whether she thinks he is fit for employment or not.

Of the 28 factories which employ I.M.O.'s as well as nurses, 8 do not require the nurse to state her opinion upon the physical suitability of the candidate for a job. In these 8 places the I.M.O. is solely responsible for this work. In the remaining 20 places which employ a doctor the nurse, to a certain degree, anticipates his work and inspects all or some of the candidates for jobs. In 14 places she sees all of these people, in another 6 she sees only some of them. In all these ~~last~~ 14 factories she performs certain preliminary examinations, such as eye-testing, upon the new entrants. It was not possible to discover a single factory where the nurse is used to "screen" all new employees in order to select only those whom she considers should be seen by the doctor. This is a function that neither the management nor the I.M.O.'s apparently, consider suitable for a nurse. It is suggested that with suitable safeguards, and under certain conditions, this is work which a properly trained Occupational Health Nurse could ~~do~~ well do.

c). Return-to-work inspections after sickness absence.

In contrast with the above, of the 19 factories without a doctor, only 3 places do not insist upon sick absentees being seen by the nurse before they re-start work. In only 6 of these 16 places, however, does she see ALL of the returning absentees. In the other 10 some form of selection procedure is used. In two of these places the nurse does this selection herself, and bases it upon the "sick-notes" which the employees present before, or at, their return to work. In another two places the Personnel Department do this selection. The remaining 6 factories have all got haphazard selection procedures which include several combinations of differing methods and criteria. These also seem to vary from time to time, in the same firm.

In those firms which employ I.M.O.'s this part of the work has been examined at length elsewhere. Attention will now be paid to the nurses' part in this work. In 9 factories ALL returning employees are seen by the nurse for selection prior to the doctor's examination. In another 6 the nurse sees all of the returning workers but she is not required to refer any doubtful cases to the doctor. She is solely concerned in these factories to discover if the person is fit enough for work. If she decides he is not fit, the matter is usually debated between her, the Personnel Department, the medical advisor who says the man is fit, and the patient himself. The I.M.O., presumably, because of his non-attendance at these times, is not usually brought into this discussion. It is also likely that this type of arrangement springs from the unwillingness of a general practioner I.M.O. to become involved in a dispute of this kind, with one of his fellow G.P.'s. In a further 11 of the "supervised" establishments the nurse sees only <u>some</u> of the returning employees before they begin work. In 6, the primary selection is done by the Personnel Department, in 4 the methods were too haphazard and variable to classify, and in one the "sick-notes" formed the basis of the selection procedure. Thus in 26 out of the total of 28 firms with both a nurse and a doctor, the nurse seems to see some or all of the returning employees. Assessment by nurses of the returning employees is thus commoner than that by I.M.O.'s. Nevertheless, as for the I.M.O.'s, a great deal of selection of these people is done before they are actually inspected by the nurse. The criteria of selection are usually very vague. They seem to be based more on administrative convenience than upon any objective approach to sickness absence amongst different population groups, and in different factories.

In 24 of all the 47 factories the nurse is routinely expected to comment upon the suitability of the worker for a specific job in the light of his physical condition on return to work. This advice must be of limited value. Many of these ladies' environmental responsibilities are so limited, and thus their knowledge of their factories is so meagre, that they cannot do this in any detail, or with any specificality. In those factories where she does this effectively, she is the competent and determined type of woman who is willing to assert her position, and exercise her knowledge. This valuable service is only given in those places where the management, as well as the nurse, realises that the work of the I.H.S. cannot be confined to the works surgery, and where she is allowed some power of advising on environmental modification for employees.

d). <u>Routine Inspection before leaving work because of illness.</u>

<u>ALL</u> of the 47 factories, which are included in this enquiry, insist upon their nurse inspecting every ill employee who wishes to leave the factory during working hours. In some instances this is done out of a genuine concern for the employees' health. In a majority of cases, however, it would seem that this is mainly a disciplinary measure to prevent employees leaving work upon the pretext

of a supposed illness. This is the only supervisory health measure which ALL the firms scrupulously enforce which is considered by ALL employers to be within the true functions of an I.H.S. The separate motives of employer and of Health Staff, in requiring this provision, are obviously widely divergent.

e). Home visiting of the Sick employee.

Of the 19 places where the nurse is unsupervised, some 14 factories do not concern themselves with this potential provision. Only 5 factories are in any way concerned about their employees who are sick at home. Their reasons for providing this service are multiple and varied. Four of the 5 stated that they always visited those people who were known to live in poor physical or social conditions. All 5 places visited every employee after he, or she, had been off work for a period of time. This period was usually a month, but one firm stated they waited for 3 months before visiting. Another 2 factories caused their nurse to visit all people who were taken ill or injured at work. Finally, the criteria used by 2 firms were so vague and general as to be unclassifiable.

Of the 28 firms which employed I.M.O.'s as well as nurses, only 6 of these thought that Home Visiting was valuable. Again the commonest criterion used was that the patient was visited after he, or she, had been absent from work longer than a certain period of time. Four places stated that they always visited those employees who were known to have poor home conditions. In one instance the criteria used were vague.

Throughout these 11 firms who thought that home visiting of the sick employee was a natural responsibility of the employer, it did not depend upon either the size of the factory, or upon the number of staff employed by the I.H.S. Small firms with only single nurses were found to spend much more time and effort in this respect than did that larger unit employing over 20 nurses. In the final analysis home visiting seemed to depend upon, firstly, the attitude of the management and, secondly, upon the attitude of the nurse towards her duties. Management had many motives about this work. Some were solely interested in the welfare of the employee. Others were anxious that the firm should demonstrate its interest in the patient so that he, often a skilled artisan, would return to their employment, rather than to some firm which he considered to be less indifferent to his fate. Some firms who provided sickness-benefits were anxious to ensure that their generosity was not being abused. There was perhaps a mixture of motives in all firms who encouraged their staff to visit the sick employee at home. Often, however, the managements seemed indifferent to this work, and it was only the sense of responsibility of the nurse which lead her, often in her non-working hours, to call and enquire if any assistance was needed. As a general rule these were the ladies who brought energy, imagination, and an acquired skill to all aspects of their work, and who are also to be found in that section of the inquiry discussed under "other duties".

## IV. Administrative Duties.

The statistical work of those factories employing I.M.O.'s has already been discussed (page 186). There it was seen that in those factories where records were kept and a nurse was also employed, the detailed work was usually performed by the nurse. For this reason it is considered that this topic has already been amply discussed.

In the 19 factories where no I.M.O. is employed the position is very similar. Ten of the firms require some form of statistical service from their nurse, but in all instances it never includes the epidemiological use of the data. In 5 of these 10 factories the nurses are concerned with the sickness absence experience of the employees, but beyond the production of various rates of absence, no attempt is made to analyse the cause or length of the absence. All 10 places are largely concerned with the production of data referable only to the internal workings of the health department. The same general remarks apply to this aspect of the work of the unsupervised nurse, as were applied to the 37 establishments employing a doctor. All 10 of these "unsupervised" factories produce regular reports, but only one comments here upon the significance, or otherwise, of the data.

## Additional Advisory Duties.

The additional duties performed in the 47 supervised and "unsupervised" factories vary little, and thus they will be considered together. Of these firms 17 do not receive any of this category of additional duties from their staff. In 17 of the remainder the nurse has some responsibilities associated with the daily running of the canteen. This usually consists of an intermittent inspection of the physical state of the canteen together with an inspection of the staff for such things as clean finger nails, clean hair, and absence of septic lesions on their hands. In 24 factories the nurse was responsible for the organisation of the biennial visit of the Mass Minature Radiography Unit of the R.H.B. She arranged the visit and managed the administrative arrangements upon the day of the visit. There were a wide range of other duties performed by these nurses in 30 factories. Where a large number of women were employed she frequently was expected to supervise the provision of sanitary towels. In one firm, where the numerous juvenile-girls were provided with a heavily subsidised three course lunch, she was responsible for the administration of this scheme. In no factory was she responsible for the actual training of first-aid auxiliaries, other than those full-time staff who work inside her department. In 28 factories she was, however, responsible for the regular maintenance of the first-aid equipment provided at various points throughout the plant.

Conclusions and Summary.

There is remarkably little difference between the duties performed by the unsupervised nurse and the nurse who works with an I.M.O. The unsupervised nurse rarely attempts, insofar as could be judged, to do the work of a qualified doctor to the detriment of her patients. On the other hand she rarely attempts any simple environmental supervision in the absence of a doctor, and this she could well do without overstepping her professional bounds. The supervised nurse, to some extent, attempts to fill the gap in environmental supervision where her I.M.O. pays little attention to this.

The chief functions of the nurse in industry, from the employers' point of view, and from that of many of the nurses themselves, is that of a super-First-Aid attendant. Albeit an attendant with additional disciplinary duties, which ensure that people who wish to leave work because of illness are genuinely ill. These are the only functions which ALL employers agree are necessary. On the other hand a minority of firms make full use of the services of their nurse. In a very few instances a strong-minded nurse has been able to educate her employers up to her level of the true conception of the nurses' place in the factory.

The supervised nurse has better medical support in cases of emergency, but even she is not as well provided for as she should be. It is rare to find nurses in either category, being employed upon other than strictly nursing duties. In the few places where she does tackle other work, she is usually an energetic woman who, finding that she was underemployed upon solely nursing duties, looked around for, and found, sufficient extra work in related fields. She thus improved the services provided by the firm in other fields.

Because of the strictly limited clinical duties many I.M.O.'s impose upon themselves, some of the factories served by unsupervised nurses were, obtaining a better service, than were some of their neighbours who also employ a doctor. This would seem to be solely due to an intelligent nurse, realising that she is dealing with a community and communal problems, rather than with exclusively individual and clinical ones. The nurse who is guided by this interpretation of her task is of greater all-round value than is a sessional clinician who rarely sees, literally and metaphorically, beyond the end of his stethescope.

## The material facilities provided for Industrial Health Services in Tyneside Industry.

The physical provision and equipment provided by all of the 56 factories, visited in connection with this enquiry, were assessed. Some of the assessments of specific items, such as the quality of the decor of the works surgery, had to be of a purely subjective character, and were related to a personal standard. Only the barest outline of these provisions is attempted here, as it proved difficult to classify them, and objectively assess many of them in relation to the needs of each particular factory. The variation of plant, processes, composition of labour force, etc. in each factory all made anything more than a very broad assessment, of such things as the adequacy of clinical equipment, impossible. It has only been possible to accurately describe and assess the limited range of physical provisions discussed below.

### a). Age of the Premises.

The distribution of the age of the various works surgeries and health-departments is shown below.

| Age. | Number. |
|---|---|
| Under 5 years. | 8. |
| 5-9 years. | 15. |
| 10-25 years. | 25. |
| Over 25 years. | 7. |
| Total | 55. (Two large factories share one department). |

7 out of 8 of those premises built within the last 5 years were specifically built as health departments. They are all spaciously planned, and are provided with a sufficient number of rooms, toilet facilities, heating, lighting etc., in relation to their needs. The eighth department is a skilful structural modification of some older premises, and is adequately suited to the needs of the factory.

Of the 15 premises built 5 to 9 years ago, 13 were specifically built as health departments and 2 were structural modifications of older buildings. There is an impression that the quality of design of these older buildings is not as good, in relation to the needs of the factory or in functional planning, as are the more modern ones. It would appear that more competent architects have been employed in this later period, or that the architects themselves have evolved a more satisfactory solution of the problems inherent in the design of such buildings. All in all, the later buildings have the impression of being designed specifically as medical departments, and some thought has been given to functional items such as the flow of work through the building. The older blocks give the impression of being a set of individual rooms with no overall concept behind them.

In the period of construction 10-25 years ago, the effects of wartime limitations, on one hand, and, of the attitude of management to their I.H.S. on the other, are seen. Only 9 of these 25 buildings were specifically built as health departments, and these were all constructed during the war under the influence of the Factories (Medical and Welfare Services) Order 1940. When the stringencies of the time are considered these places are, on the whole, well designed and built. For the most part they continue to function efficiently today, without having to be drastically adapted, and all seem to serve the needs, of their often greatly enlarged factories, adequately. The remaining 16 buildings constructed during this period have all been modified, in one way or another, to suit their present purposes. This modification has, with only 4 exceptions, been a post-war happending. In 14 of the 16, there has been some, more or less, drastic internal reconstruction of the building in an attempt to allow it to serve its present purpose, adequately. No less than 12 of these buildings were war-time air-raid shelters, and the possibilities of adapting this original type of structure into a satisfactory works' health department, are small in most instances. In some of these places a relatively immense amount of effort and money must have gone into this adaptation, and yet the results in the majority of the 12 places do not meet the requirements of the factories. The reconstruction of the other 2 buildings has also taken place within the framework of old war-time buildings, one was a civil defence head-quarters, and the other gas-decontamination room. The result there has been no more successful than with the old air-raid shelters. The 2 remaining premises were adapted to their present, from their war-time, purpose, without any structural modifications at all. They can only be described as the slums of the I.H. Services of Tyneside. Apart from the addition of a wash basin, of some paint to the walls, and of some furniture, they remain in their original state. As both of these places were originally stores for civil defence equipment, their suitability for their present needs does not need to be discussed further.

The situation of those seen premises which are over 25 years old is largely similar to that of those described in the last paragraph. None of these buildings, which were largely constructed during the period of the inter-war economic depression, was specifically designed as a health department. Four of them have since been structurally adapted to their present purpose with results similar to those

Table No 113.

Number of Rooms in Health Department related to number of people employed in Factory.

| No. of Rooms in Dept. | No. of Employees. 101-250 | 251-500 | 501-1000 | 1001-2000 | 2001-5000 | 5000+ | Total. |
|---|---|---|---|---|---|---|---|
| 1 | 8 | 5 | 5 | | | | 18 |
| 2 | 2 | 8 | 5 | | | | 15 |
| 3 | 1 | 1 | 2 | 1 | | | 5 |
| 4 | | 1 | 3 | 1 | 1 | | 6 |
| 5 | | 1 | 1 | 1 | 2 | | 5 |
| 6 | | | | | 1 | | 1 |
| 7 | | | 2 | | | 1 | 3 |
| 8 | | | | 1 | | 1 | 2 |
| Total | 11 | 16 | 18 | 4 | 4 | 2 | 55 |

Table No. 114.

Factory Health Departments.

Number of Washbasins provided in relation to number of employees.

| No. of wash basins. | Size Groups. 101-250 | 251-500 | 501-1000 | 1001-2000 | 2001-5000 | 5000+ | Total. |
|---|---|---|---|---|---|---|---|
| 1 | 8 | 7 | 5 | | | | 20 |
| 2 | 3 | 5 | 4 | 1 | | | 13 |
| 3 | | 2 | 5 | 1 | 1 | | 9 |
| 4 | | 2 | 2 | | 2 | | 6 |
| 5 | | | 1 | 1 | | 1 | 3 |
| 6 | | | | | 1 | 1 | 2 |
| 7 + | | | 1 | 1 | | | 2 |
| Total. | 11 | 16 | 18 | 4 | 4 | 2 | 55 |

(When the number of rooms was counted, there were excluded such spaces as lavatories, corridors, wall cupboards, etc. Only those spaces, which could be considered available for regular and general use, were included.) It is suggested that a minimum of 2 rooms is needed by the health department of any factory if it is to operate effectively. One of these should be reserved for treatment, examinations, consultations, and possibly used as a recovery, or rest room as well. The second should be kept for waiting, and possibly also, recovery. This basic accommodation, even so, only permits of the separation of the sexes at the expense of functionally inactivating one or other of the rooms. Thus a room used for examining a male cannot at the same time be used as a rest room for a dysmenorrhaeic female. Usually it will be possible to allow the sexes to mix in the waiting room whilst keeping them separate in the treatment room. In all events it seems impossible to run an I.H.S. efficiently from a single general-purpose room which serves as treatment, waiting, examination, records, staff and recovery rooms, all rolled into one. Nevertheless it is seen that 18 of the 55 factories attempt this type of organisation.

The use of only 2 rooms, where there is a large minority of one sex, must present difficulties in working also. A further 15 firms attempt this. The larger number of rooms are all provided by the larger firms who, presumably, are more able to afford the expense of this type of building. It must be admitted, however, that 8 of those 29 firms who troubled to put up specific buildings for their I.H.S., attempted to economise by building departments of only one and two rooms. The small relative cost of building another room which would allow a much more flexible method of working, makes this an unwise economy.

d). Site of Premises.

The siting of these premises, in relation to the main buildings of the factories, was studied. Only one department was situated outside the factory boundary, and this lay on the opposite side of a busy main road. This was one of the places adapted from an air-riad shelter, and the rest of the erstwhile shelter was used as a clothing store. In 16 factories the department was situated at, or near, the main gate of the establishment. In 29 factories a deliberate effort had been made to site the department at a roughly central position, so that it was nearly as equidistant from all the main production shops as was possible. In the remaining 9 places the siting had been purely haphazard, and was determined by the existing building on that site which had been adapted into the health department.

An attempt was made to assess the ease of access to each department from the main workplaces of the factory. In 22 of the 55 factories it was considered the department could be reached with approximately equal ease from all the major places of work. In another 23 places some of the employees could only reach it with difficulty but for the majority it was reasonably accessible. In a further 9 factories either the siting of the Department or the layout of the plant meant that a majority of the workers would have some difficulty or delay in attending. Finally, in one place all the employees had a considerable distance to walk, and a main road to cross before they reached the department.

d). Internal Condition of Premises.

Under this heading will be considered such items as cleanliness, decor, and maintenance of the fabric of the premises. Much of this assessment is subjective and thus considerable qualification must be placed upon the comparability of the data, as it was obtained from separate factory visits, some of which were as much as six months apart.

i). Cleanliness. The cleanliness of 12 of the 55 departments are beyond reproach. Some of the nurses who ran these places were contending with grave handicaps such as lack of assistance, old and cramped premises, and dirty patients and processes. Despite this, these departments were spotlessly clean, and there was an air of order and control about them. As could be expected, however, it was the newer and well designed places which usually presented this appearance. Another 26 places, whilst not up to the previous high standards, would pass all but the most rigorous inspection by any hospital matron. Many of these staffs were attempting to attain the standards of the previous group, but were being handicapped by one or more difficulties which were completely beyond their control. Within these handicaps they were handling the situation to the very best of their ability. In another 11 places the department was adequately clean, but it was felt that either the staff had become overwhelmed by the difficulties facing them, or, did not genuinely appreciate that a greater effort on their part could improve the mediocre state of cleanliness of their department. It was usual [redacted] to be struck by a general sense of disorder and untidiness, in the arrangements, rather than by frank dirtiness. In these places the staff was often hampered by lack of adequate storage space. Of the remaining six departments 4 were classed as "poor". This was always the result of bad housekeeping. Whilst their difficulties were usually obvious to them, the staff had given in to them, and were making little determined effort to keep the place clean and tidy. The other 2 places were frankly filthy. No attempt was apparently ever made to clean the department, and utter disorder reigned in the arrangement of the equipment and furniture. Both these latter places were attended by unassisted I.M.O.'s

It was estimated in the 17 places where there was obvious room for improvement that the cause of the condition was primarily the result of bad housekeeping. In only one was the dirtiness of the processes and the patients the unalleviable cause of the trouble.

When asked for their opinions about the ease of keeping their departments clean, it is probably natural that in some 21 places the staff had a large number of complaints to make about the building and the arrangements of working. Only another 2 admitted that their task was hopeless. In the other 32 factories the health staff had no, or very few complaints, to make on this score. These people did not always correspond with those who kept their departments in the best order. In fact many of those with most complaints were those nurses who were struggling against considerable odds, and achieving a satisfactory result.

ii). Decor.

Again a largely subjective approach was made to this topic. 19 of the departments had decor which was classed as "cheerful". The general effect of these places on the observer, was one of brightness, colour and light. The atmosphere of the place was somehow a "healthy" one. In 24 places it was classed as "nondescript". The department made little positive impression on the visitor. It was neither oppressive nor stimulating. It left an impression of mediocrity and lack of imagination. In another 8 places the decor was classed as "depressing". Little attention had been paid to the characteristics of these rooms when they were decorated. These were not places which impressed as being Health departments. They had a preponderance of brown and green paint, and often this was showing signs of bad repair. They were altogether rather depressing. In only 4 departments could the decor be classed as frankly "gloomy". The rooms were oppressively dark-coloured, the decor was in poor repair. These were places where Health had no meaning, and to be treated in one of them would be a grim business, no matter the actual gravity of the complaint.

The state of maintenance of the decor was also arbitrarily assessed. In 28 factories it was classed as "good", in 18 as "indifferent", and in 9 as "bad". This state of repair was obviously directly related to the intervals between recurrent decorations and when this was enquired about the following pattern emerged. 11 departments had been decorated within a year of the visit, 18 between one and two years previously, 17 between three and five years previously, and 9 over five years before. It was the 9 latter places which had been classed as being in a "bad" state of repair by subjective assessment.

Overall the majority of factories paid little positive attention to the decoration of their health departments. A minority showed that care had been taken with them. A larger proportion had not given the point any specific attention, although the place was kept looking as decent as this attitude permitted. A few places either ignored this facet of their Health Service as being unworthy of any attention at all, or positively thought that to make the place look too attractive would only encourage people to loiter there when they should be working.

iii). <u>Maintenance of the fabric of the building.</u>

A somewhat similar pattern to that above was shown in this respect also. The two matters of decor and maintenance of the fabric of a building are, of course, closely but not necessarily related. By and large, the more expensive physical structure of the building was better maintained than was the decor. 32 places were assessed as being in a "good" state of maintenance, 19 were classed as "indifferent". In these departments some obvious defects such as cracked plaster, leaking taps, broken glass, faulty light fittings, had obviously been allowed to remain faulty for some time. In only 6 places was the maintenance classed as "bad". Here there were numerous defects of structure and equipment which had obviously been in need of attention for some considerable time. These 6 factories were all in the "bad" decor category also, and the attitude of the managements to the existing situation seemed to be one of defensive hostility.

iv). <u>Other matters.</u>

Specific attention was paid to two other points in the structure of the health departments; these were the condition of the flooring and the covering of the walls. These two matters were arbitrarily selected as both points were easy to observe and assess, and they could be used as indices of the general care and attention which had been given to the building.

Only 9 departments had their walls partially or completely tiled with some impervious material. Another 29 had painted plaster walls, 11 had painted brick walls, (these were all the converted air-raid shelter type of building) and 6 other places had varying and different types of wall, such as glass-panelling.

The floors of these places were assessed regardless of the type of covering, as to whether they were pervious or impervious. Thus cracked tiles were classed as pervious and new linoleum as impervious. The situation was far from satisfactory from a hygeinic viewpoint, as some 26 floors were impervious and presumably difficult to wash properly. The remainder of the floors were covered by some form of impervious material.

f. Equipment of Health Departments.

Under statutory regulation all "Ambulance Rooms" must contain a minimum of equipment. In all the factories covered by this enquiry it was found that these standards were being maintained. Thus, for example, all the places provided hot and cold running water.

i). Sanitation. Only 23 of the 55 departments had lavatories for the use of patients and staff within the department. Only 6 of these provided separate conveniences for the two sexes. Either the toilet was barred to one sex who had to seek one elsewhere, or the use of one lavatory was allowed to both males and females. Of the remaining 32 places, 19 had a lavatory immediately available nearby, but in 13 factories there was no lavatory within immediate access, and one could only be reached at some distance.

ii). Ventilation. The position was just as unsatisfactory here, 33 departments had only natural means of ventilation and, subjectively, it appeared that 24 of these were in need of some additional means of ventilation. In the 19 where the natural ventilation was reinforced by mechanical means all, but one, were considered to be adequately served. Of 3 departments, which were completely enclosed within the interior of the plant, the ventilation was completely artificial, and was highly adequate, in two, and one place had a completely air-conditioned atmosphere.

iii). Noise. In 26 of the 55 departments there was no outside noise audible within the main working area of the department. In the other 29, external noise did intrude into the health department. In 13 of these places it was classed as "non-intrusive", in another 13 places the noise was considered "intrusive", and would disturb some of the work of the I.H.S. such as history-taking or auscultation. The noise was considered "intolerable", to the visiting observer in a final 3 places, but, somewhat naturally, the permanent staff had become accustomed to, and were not troubled by, it. All those places which had some artificial means of ventilation were noted to be in the categories where external noise was audible within the department. This was probably due to the fact that these places were sited within, or very close to, a part of the factory which made it necessary for them to have some type of reinforced ventilation. This also meant that the noise of the adjacent processes penetrated the department more easily.

iv). Washing Facilities. There is adequate scope for improvement, beyond the statutory minimum in this respect. As will be seen very few firms consider this is so. Thus 20 firms provide no more than a single sink which is necessary under the Factories Acts. The distribution by size of firms and the number of wash basins which they provide is shown in Table, 114. The fact that there is room for provision beyond the basic minimum standards is shown by this table. The firms which only supply one wash-basin imply that the staff of the department must either wash their hands in the same sink as the often contaminated patients, or not wash them at all. Either alternative is undesirable. Of the 35 firms which provide more than one wash-basin some 29 provide a surgical basin as one of the extra sinks. It would seem that if only a single sink is to be provided it should be s surgical one, which would allow staff to wash their hands properly without the risk of contaminating them from contact with bacteria-carrying porcelain.

It seems that many firms are content to comply with the minimum requirements of the Factories Acts, and are not prepared to expand upon these provisions, no matter the number of people they employ. This attitude in the medium-sized and larger firms puts a strain on the limited washing facilities and makes smooth running of the department much more difficult.

g). Other Equipment.

All departments, as well as being compelled to provide a single sink with hot and cold water, must also under the Factories Acts, provide other standard equipment. These include "a means of sterilising instruments", a "table with a smooth top", and a "couch". As could be expected these 55 places all provided these things. In relation to the estimated need of the department, it was considered that in 20 places the amount of flat working surface available was inadequate. In 14 places the single examination couch, was also inadequate for the needs it was liable to have to answer. Similarly in 19 places the sterilizer, seemed inadequate for the task it should have been called upon to perform.

It was difficult to assess the adequacy of such equipment as surgical instruments, dressings, clinical examination instruments, and so on, in this type of enquiry, without spending considerably more time in first discovering the pattern of work done by each department. In lieu of this some other items of equipment were considered, but these do not by themselves give a sufficient picture of the adequacy of the total provision of the equipment of the 55 factories.

In 26 of the places visited there was no foot-bath, and its doubtful if any factory medical department should be without one, no matter the size or type of factory. Although the legislation states that either, some means of sterilsing dressings must be provided, or that dressings must be bought sterilised, only 14 places were found to have autoclaves. It is doubted, from what little was observed of the techniques in use in these places, if many of the other 41 places bought, or used properly sterilised surgical dressings. Some 19 factories had radiant heat lamps, all of which seemed to be used very freely, and many of them quite arbitrarily and with little, if any medical supervision. It was found that many general practioners requested the factories to provide this type of treatment for their patients. Some 8 of these 19 places also provided ultra-violet light therapy, and the position over the unfettered use of this was just as unsatisfactory. Four of the larger factories had their own ambulances although one of these served two adjacent places. All factories, and the point was always raised, agreed that the service from the local ambulance service was swift and efficient. It is, therefore, difficult to see why, apart from use as internal transport within a very large plant, any firm need supply its own ambulance for external journeys.

## Conclusions and Summary.

Many of the local firms are content to provide the statutory minimum of health facilities, despite the fact that this obviously hampers the effective performance of their own health service, and frustrates their staff. A minority of enlightened employers pay considerable attention to this aspect of their factory organisation, and this type of firm is scattered throughout all size ranges and all industries. They are not confined to the larger units of industry. The attitude of a management to its health services, and thus the value it places upon them, can often be readily detected by assessing the type and scope of the physical provisions they make for it. In many instances enthusiastic staff battle against odds, and their employers, to provide a service of good quality with inferior facilities. In many instances, however, it is suspected that those employers who provide poor and inadequate equipment receive an equivalent type of service from that quality of staff which such mediocre conditions of work attracts. These employers either do not, or will not, realise that as well as serving the patient, the employee, badly, they are indirectly serving their own interest in the same way.

# Chapter 18.

## Recent Opinions and Experiments relevant to the function and design of an Industrial Health Service (I.H.S.).

There is a wide and complex field of accumulated opinion and fact to be covered by this chapter. For the sake of simplicity, it is proposed to treat the material in several arbitrary divisions. This is somewhat unsatisfactory as, for example, the design of an I.H.S. cannot be divorced from a consideration of its function. The volume of previous work done on these two subjects, however, is large, and to handle it in a concise and clear manners some such division is needed.

### Recent History of the Development of the Concept of an Industrial Health Service.

During the first World War the alarming amount of sickness absence in workers in munitions factories lead the Government of the day to establish, in these works, a medical care service. They further stimulated interest in the problem by establishing, in 1915, the Health of Munition Workers Committee. This was probably the first attempt, in Great Britain, to organise an I.H.S. across a broad range of industry. After the war ended there was a lapse of interest, both private and governmental, in such matters. After some hesitation research was continued in the subject by the reformed Industrial Health Research Board. The Universities took little interest in the topic and private industry seemed to be unaware that the care of the health of its employees demanded more than the statutory inspection of the Factory Inspectorate. A few government departments, such as the Post Office, provided a medical service for their employees and these included in their work some simple preventive measures. (1)

In the 1930's interest revived somewhat. In 1935 the University of Birmingham appointed a Reader in Occupational Hygeine, but the appointment lapsed after some three years, because of the lack of support. (2) About this time some of the larger industrial concerns in the country were beginning to appreciate the benefits that could be obtained from such a service, and a few of them, such as the London Passenger Transport Board, set up rudimentary Health Services. (3) The emphasis, however, continued to be upon treatment rather than prevention.

With the outbreak of World War II there was a sudden revival of interest for similar reasons to that occuring in the first World War. In the early period of the conflict the lessons learned in the previous struggle had been ignored. In

1940 the first legislative recognition of the importance of the health of the war-worker, came from the Factories (Medical and Welfare) Order 1940.(4) This laid down outline standards of care to be provided by all factories engaged upon the production of war materials. In 1941 the British Medical Association issued the report of a committee which had been set up to examine the "co-ordination of industrial Medical practice with other branches of medical practice".(5) This was short but comprehensive and presented the Association's views upon such matters as, the place of medicine in industry, the duties of an Industrial Medical Officer (I.M.O.), medical education for industry and the future of this type of work. In the following years of the war much thought was given to the organisation and development of the whole range of national health and medical services, and this naturally involved further consideration of the place of an Industrial Health Service. The Association of Industrial Medical Officers had already issued a statement about the peacetime training of medical staff for industry.(6) This gave some indication of the nature of the work that was to be done by these doctors. There was still little thought being given to the manner in which these services should be provided. When, in the later years of the war, the ultimate design of the post-war health services began to take shape suggestions on this topic began to appear.(7)(8) These were mostly based upon the assumption that the State would provide for the health of the person at work, in the same manner as it was preparing to care for his sickness and health at home and in hospital. The integration of a future I.H.S. into the proposed National Health Service (N.H.S.) was first publicly advocated by both the Trades Union Congress(9) and the Association of Scientific Workers.(10) There was, at this time, some preoccupation with preserving the independence of action of the I.M.O. Stress was laid upon the fact that he should be neither directly appointed nor paid by the company which benefited from his services. The answer to this problem was sought in making the State completely responsible for the organisation, provision and control of the future I.H.S. In January, 1945 the Royal College of Physicians issued a detailed report on the organisation of a national I.H.S. which took into consideration the recently issued White Paper on a National Health Service.(11) This report agreed with the points made above, and considered that the projected I.H.S. was urgently needed, and should be introduced as an integral part of the newly proposed N.H.S. It suggested that the central control of the service should be in the hands of the Ministry of Health, and that the local control should be in the hands of whatever local administrative body was set up in the N.H.S. to control the other local health services. This latter arrangement would allow integration at the periphery with the other branches of the new N.H.S. As the ultimate pattern of the local organisation for the N.H.S. did not become clearer until much later, this report could not be precise about the local form of integration. The report went into such other matters as grades of staff, education of doctors, research, terms of service and finance. The Royal College also agreed that it was inappropriate for the I.M.O. to be appointed by, and responsible to, the managements of individual industrial companies. The staff would be appointed and controlled by the new local health authority.

This report was, until that time, the most far-reaching and comprehensive to be yet published upon this subject. Its basic conclusions as to the function, the staffing, organisation, education, and research formed a core of principles which were to be built upon by all later reports. It was, and probably still is, the most important single contribution to the topic. There were, however, several grave omissions in it. Little consideration was given to the future of the Factory Inspectorate, which up until now had been the sole effective supervisor of health in industry. Even less attention was given to the attitude of the employers, who had made little contribution to the preliminary discussion, and to the construction, of this document. It was rightly pointed out that the I.M.O. is a member of the management team of a factory, and to have a member of this team chosen, and appointed by some outside body would not appeal to many senior industrialists. These are still two of the main difficulties facing the implementation of the main proposals of this excellent plan.

Perhaps the gravest pre-assumption made by the Royal College, however, was about the responsibility felt by industrial management for the health of their employees, now that the state was proposing to provide comprehensively for the National Health. It is apparent that Industry thought that the health of the worker at work would become the State's responsibility also. When the National Health Service Act 1946 was passed, it became apparent that no responsibility for the health of the citizen at work was, however, to be assumed by the Government. The reasons for this are largely unknown. It is presumed that they were a combination of the difficulties mentioned above plus a governmental unwillingness to overload, with an extra burden, the untried administrative machinery of the new National Health Service.

The administrative position of the I.H. Services is today, thus, approximately the same as that which existed when the report was drawn up by the Royal Colleges. Since then there has been a spate of discussion on the matter. None of this has resulted in any legislative or executive action by the State. In 1947 the Association of Certifying Factory Surgeons returned to the topic and broke fresh ground. (12) They suggested that the I.H.S.

should be kept separate from the N.H.S. Whilst admitting that there was an urgent need to develop the range of the existing services, they felt that it should be a different type of service to any previously suggested. This Association favoured, somewhat naturally, an extension of the statutory inspectorial system (i.e. of the functions of the Appointed Factory Doctors (A.F.D) of today). The scope of the statutory duties would be broadened and the statutory health facilities, that had to be provided by factories would be increased. The extended duties would be under the control of the Factory Inspectorate who would, as today, be responsible for the appointment of these doctors. The increased medical staff would be recruited from amongst local general practioners and the increased cost would be borne by the employers, who would contribute for each employee upon a per capita basis.

In 1949 the British Medical Association, which had been collecting evidence on the subject of I.H. Services, issued a report. 13 This broadly confirmed that the outline, as suggested by the Royal College of Physicians, was the appropriate one. This report was, however, a less ambitious document than the latter. It recognised that there was a large gap existing in the National Health Service as it did not extend to the care of the worker at work. This was a deficiency that must be remedied, but the manner of doing this was far from clear. Broadly, there should be some form of integration of such services within the general body of the N.H.S. The Ministry of Health should have the central control of the projected service, and at the periphery there should be links with the consultant and general practioner service. These links should be of dual appointments of staff as well as being administrative ties. Within these broad outlines this report did not enter into much specific detail. It recognised that there was doubt and controversy about many points in the projected organisation of a national I.H.S., and it recommended an objective experimental approach to these. Amongst the matters admitted to be in dispute were the following. Should the ultimate central control be in the hands of the Ministry of Labour or of Health: what was the future place of the Factory Inspectorate and its duties in relation to the I.H.S.: what were the ways and means of integrating the I.H.S. with the existing arms of the N.H.S., and what was the place in the new scheme of the I.H.Services already provided by the larger and more enlightened employers? Above all, in the eyes of the report, stood the dilemma of the I.M.O. He was recognised to be a member of the management team of the factory and he needed the co-operation of management to adequately perform his duties, yet, he also needed to be demonstrably independent of them, if he was to be able to give completely objective advice and to retain the confidence of the employees. In the light of these numerous unknowns and controversies, the Association recommended that experiments with different types of procedure and organisation were needed to test the relevant merits of the various suggestions. There would need to be preliminary surveys, in different areas, to assess the existing position before these experiments could begin. It may, as a result, be necessary to design different types of service to suit different existing situations. Finally, more attention would need to be given to ~~included~~ that large section of the working population which did not work in factories or similar places. The Association had previously suggested that there were three general patterns possible for future development.[14] Firstly, an extension of the present patch-work, laissez faire, system reinforced by legislative sanctions, Secondly, a service completely organised and run by the State, and completely integrated into the N.H.S. Thirdly a compromise between these two extremes, with the State and private industry sharing the responsibility and the financial burden in some way. The association apparently favoured the latter method.

In July 1949 the Prime Minister announced the intention of the Government to appoint a committee of enquiry (The Dale Committee), "to examine the relationship between the ........health services provided for the population at large and the industrial health services which make a call on medical manpower .......: to consider what measures should be taken by the Government and other parties concerned to ensure that medical manpower is used to the best advantage; and to make recommendations."[15] This committee reported in February 1951.[16] Its terms of reference were not sufficiently wide to allow it to consider the development of organisation of a nation-wide Industrial Health Service. The object of the Government at that time seemed to be more concerned with preventing a possible deviation of medical and nursing personnel into industry and away from the N.H.S. There was, nevertheless, here an opportunity to examine some of the problems facing the foundation of an I.H.S. under the first term of reference- namely the relationship between the N.H.S. and existing Industrial Health Services. Throughout its existence the work of this committee was hampered by the Government's desire to see it report quickly, as it, the Government, had imposed a ban upon the further development of health services in industry whilst the committee was sitting. The Report briefly surveyed existing N.H.S. and I.H.S. facilities and organisations. It served a useful purpose in authoratively reiterating the functions of I.M.O.'s and Occupational Health Nurses, as already recommended by the B.M.A. and the Royal College of Nurses respectively. It examined the question of duplication of work between the N.H.S. and the I.H.S. and found that there was very little that did not benefit either the patient, or the productivity of industry, or both. It did find that there was some duplication between the School Health Authorities and the Appointed Factory

Doctors and thought it was unnecessary for the latter to perform their duties separately from the I.M.O. of the factory, where he was in existence. The Committee found also, that there was no unnecessary wastage of medical manpower in the existing I.H.S. but that there was an opportunity for the dilution of fully trained nursing staff by assistant nurses. It commented upon the inadequacy of training of much of the First-Aid staff that has to be compulsorily provided under the terms of the Factory Acts, and thought that more use could be made of better trained First-Aid auxiliaries in the factories employing under 50 people. This Committee, like the B.M.A., stressed the need for more information about the precise needs of different types of industry and localities, and about the optimum form of the organisation needed by a national I.H.S., to be collected from surveys and experiments. It was recognised that eventually there should be some comprehensive provision made in this field and that it should cover the non-industrial establishments and be co-ordinated with the N.H.S. The complementary nature of the N.H.S. and existing Industrial Health Services was recognised, but thought that the definition it gave of the scope of an I.H.S. should be adhered to, to prevent wasteful overlapping. The possibility of encouraging the future development of an I.H.S. to cover a wider section of industry by the simple legislative prescription of higher standards was recognised. One of the larger problems confronting the provision of a national service, the factory employing less than 50 workers, was only briefly touched upon. It was appreciated that such small factories may need a different type of service to that already provided by some larger units of industry. The problem of designing an effective, yet sufficiently inexpensive, service for these, often financially precarious establishments, was also acknowledged. It was agreed that there was not, at present, sufficient information available about the method of providing for such factories to allow detailed comments to be made. It suggested that even a modest increase of services to such places would need a considerable increase in medical and nursing manpower. It is doubted if this last observation was an objective or reasonable deduction to make, as the possible types of organisation of schemes for such factories was not apparently considered. The existence of certain experiments in this field was noted without further comment. Finally, more co-operation between the Ministries engaged in the field, and the setting up of a Joint Advisory Committee, was recommended.

The findings of the Dale Committee have been considered in some detail, as they represent the only recent governmental consideration of the position. The report disappointed some, who had expected a definite outline plan for a future I.H.S; others had expected at least a strong lead to be given for their future development. It appears as if the main conclusions of the committee were sound. The problems facing the foundation of such a service are too numerous, and too little is known about their solution, for some grandiose scheme to be embarked upon. A gradual experimental approach, and much more investigation, and social experiment, is needed before the basic principles, relationships, and organisation can be determined. Up until the present, however, there have been few further developments officially. In 1954 an Industrial Health Advisory Committee was set up by the Ministry of Labour. (20) This is made up of representatives of various interested parties, and its function is to advise the Minister upon steps to be taken to further the development of industrial health services, within the bounds of present legislation. The present activities of this committee seem to be confined to recommending the carrying out of certain investigations, which will provide some of the facts called for by the Dale Committee nearly four years before this body was appointed.

In Summary the present day position would seem to be this. There is a generally agreed opinion, outside industrial management, that the advantages of an I.H.S. should be available to the complete range of British Industry, rather than to a very small section of it, as at present. The main focus of this extension should be the small and medium-sized factories, which find it difficult for economic reasons, to provide these facilities individually, at present. The extended I.H.S. should be co-ordinated in some form with the existing N.H.S. Legislation is needed to compel those employers, who will not, voluntarily, provide these services, to do so. There still remain unsolved basic administrative problems, such as the scale of staffing, the form of relationship between the I.H.S. and the N.H.S., the financing of the service, the degree and type of State participation, if any, and the training and recruitment of staff. Throughout all the extended consideration given, by many bodies, to this question, there has been no authoritative opinion on the matter expressed by a representative body of employers.

There will follow next a review of some of the opinions expressed upon these difficulties and controversies.

Review of recent opinions about the functions of an I.H.S.

What is considered to be the ideal outline of function for an I.H.S. follows in the next chapter. A review of opinions which support and contradict this concept will now follow.

The Dale Committee, for the first time, stated authoritatively, what was presumably officially accepted to be, a comprehensive outline of the functions of an I.H.S. The duties considered sutiable to be undertaken by doctors and nurses in industry had, for many years previous to this, been the subject, of guiding statements by the B.M.A.[21] and the Royal College of Nursing.[22] These statements proved sufficient for their purpose until the provision of some nation-wide scheme seemed to be imminent. At this point, various bodies and individuals re-assessed this matter, and a flood of suggestions resulted. The professional functions, as previously outlined, of nurses and doctors were questioned and, in many cases, radical departures of function were suggested for them. The functions of an I.H.S. are, of course, inextricably bound up with the organisational structure of such a service, and to this extent, this separate discussion of function is somewhat artificial. There are available so many suggestions about the eventual organisation of an I.H.S. that it is more convenient to handle the two topics separately.

Those reports and memordanda issued at the end of World War II detailed the possible functions of an I.H.S.[11][13] Another lengthy and detailed set of propsals dealing mainly with the functions of such a service was issued in early 1946.[23] Altogether these reports had a great deal in common and, in fact, agreed, to a large extent, with the existing definitions of the duties of doctors and nurses, and with the later findings ~~and functions~~ of the Dale Committee. In essence, they are repeated in the following chapter when these functions are discussed in detail. It would appear that there had been official approval for this range of activities for some time previous to this.[24] The Factory Department had issued a memorandum on the subject of the doctors' duties in Industry, as early as 1940, and this has been reprinted, in an almost unchanged form, until the present day. It roughly corresponds with previous definitions. The place of treatment services within an I.H.S. and the place of the trained nurse, was similarly discussed in an official Welfare Pamphlet issued about this time by the same department.[25] This also agreed, to a large extent, with previous pronouncements from various quarters on the subject. These Factory Department publications were only in the manner of suggestions to employers, and did not mean, presumably, that they were officially accepted, or that a national I.H.S. would follow their principles.

In the five years following World War II there was little published discussion about this matter. The appointment of the Dale Committee, and the B.M.A. report, roused fresh interest. As has been seen, both these documents made an exploratory and tentative approach to the subject of organisation of an I.H.S. This caused, on the one hand, some questioning of the whole purpose of an I.H.S. and on the other, a critical self-evaluation of their work, by those already working in Industry. There followed a period of controversy, where debate about the function and form of the services was intermixed and confused. This is all the more surprising, when it is considered that it was upon the legitimate functions of an I.H.S. that the Dale Committee was quite definite, although it could not outline a suitable administrative vehicle for extending these.

On one extreme stood an eminent academic personality questioning, whether the whole subject of Industrial Health was necessary at all, although it appears that he was really questioning the necessity of a separate service to administer it. (26) On the other extreme there were I.M.O.'s advocating the establishment of a national I.H.S., providing a full range of treatment, staffed exclusively by full time I.M.O.'s and enforced by legislation, in all sizes and types of factories. (19) In between these extremities were numerous other interested parties, all defining the functions of an I.H.S. in such a manner as so best to use their own training and experience. The members of the Public Health Service were amongst some of the foremost critics of the existing functions of the existing I.H.S. It was the treatment of patients that caused the greatest controversy. (27) It was the Medical Officers of Health who lead this debate. (28) One considered that, as most of the functions of an I.H.S. were already performed by G.P.'s in their surgeries, there was no need for the elaboration of a separate I.H.S. (29) A few full-time I.M.O.'s would be needed to perform curative duties in the larger factories and a smaller number of Regional Consultants in subject would, also, be needed. The environmental control in industry could be carried out by the local Health Authority under statutory powers. Another trenchant critic feared that with increasing numbers of separate Industrial Health Services there would be an increasing tendency to become treatment rather than preventive services. This would lead to an inferior quality of care and unnecessary duplication of effort. The main function of an I.H.S. should be environmental control, and this was to be based on an increased range of Local Health Authority inspectorial functions. (30) (31) A simpler and more experimental, approach was also suggested by an M.O.H. (32) This would allow some estimation of the existing morbidity, amongst the local industrial population to be made by the Local Health Authority. The M.O.H. would be empowered to collect elementary epidemiological data from all employers and thus an estimate could be arrived at of the depth of the problem.

A variation upon the principle of the purely environmental inspectorial function was raised by an Appointed Factory Doctor. (33) This, intimately involved considerable organisational changes and the whole matter is considered later.

Finally there was controversy within the body of professional people working in industry about the true functions of an I.H.S. 34 It was rarely disputed that the main emphasis of such a service should be upon prevention, but there was some irritation about the limitations placed upon work in the curative field, by the Ethical Rules of the B.M.A. There was some attempt to obtain a revision of these rules. It was felt that if a wider scope were allowed, to properly staffed and equipped Industrial Health Services, there would be greater opportunities for quickly benefiting the patient, and industry, alike. There would be a reduction of overlapping of duties and a saving of the patient's time.

The most recent contribution to the debate comes from the Association of Industrial Medical Officers (A.I.M.O.) who, in 1956, published a booklet outlining at length what they considered to be the legitimate functions of an Occupational Health Service. 35 These corresponded very closely to the definitions which were produced some ten years previously. It would seem that this definition is liable to become the generally accepted one. The original concepts were, and are, sound and, despite an interim period of hesitation, and doubt about these in the early 1950's, it is submitted that in the future there will be little further debate upon this point. The debate will still continue upon the other main aspect of an I.H.S., that is the form a nationwide service should take.

Review of recent opinion on the organisation of a National Industrial Health Service.

It was seen in the first section of this Chapter that there is a generally agreed need to develop the I.H.S. of the country to cover the smaller factories. The functional emphasis on prevention is, also, agreed but there is less agreement about the scope of the treatment facilties that should be provided. This agreement limits, to some extent, the variations of form that are possible but there is still sufficient room for a wide range of alternatives to be formulated.

That eventually some form of legislation will be needed is not disputed, neither is the need to push forward with development. It seems to becoming agreed, however, that there needs to be more experiment, and investigation, with some of the numerous alternatives that have been propounded, before any form of legislation is embarked upon. It is perhaps opportune to note, that there would appear to be adequate legislative power avilable to the Minister of Labour already, under Section II of the Factories Act 1937, and Section 3 of the Factories Act 1948. 36 Presumably, one of the reasons why this has not been done already, is because of the dispute as to whether this Ministry, or some other, is to have central responsibility for the enlarged service.

The immediate post-war proposals for integrating an I.H.S. within the framework of the N.H.S. came to nought. The present discussion hinges upon [redacted], the degree of State participation that is required, and what agency of the Government will be given the task of implementing this participation.

Of organised bodies of opinion only the Socialist Medical Association and the Medical Practioners' Union are in favour of a completely State controlled and organised service. The latter bodies' proposals are the most completely worked out, and need further attention.[37] The statutory obligations of the employers are to be directly provided and supervised by a local Occupational Health Authority, which would, in effect, be a reorganised Local Health Authority. This assumes two major points. That the local government structure of the country will be reorganised to allow larger Regional Authorities to be formed, and, that the N.H.S. will also be reorganised, and the new Regional Authority will be armed with many of its present functions.[38] Whilst it is admitted that this may be the ultimate solution to the present, and many other, problems it involves changes of a more far-reaching character, than it is possible to discuss at length in the present context. Unfortunately the plan gives little attention to the attitudes of the employers. Legislative coercion could achieve much co-operation but hardly of the quality which would allow the humane administration of an I.H.S. These suggestions fully appreciate the need to engage the general practioner in this work, although little attention is given to the problem of providing him with the extra training he will require.

The Society of Medical Officers of Health has definite views upon the organisation of an I.H.S.[31] The work is essentially preventive and, as such, should be part of the existing Public Health Services. The present powers of the M.O.H. are too limited in the industrial field, and by a simple expansion of these, and of staff many of the problems in need of solution in industry could be satisfactorily coped with. The administrative difficulty would be solved simply by the addition of a specialist department in the subject, to the staff of the M.O.H. The need, during adolescence for a smooth transition from school to work could be best assured by the L.H.A., as could graduated rehabilitation for the injured adult from home to factory. The shortage of trained staff and of adequate data, at present, is recognised and is given attention. None of the other main professional associations have produced a plan which is as detailed as this one. Both the B.M.A. and the A.I.M.O. seem to favour a period of experiment, and survey work before any concrete proposals can be made.

Of non-professional bodies, apart from those who were interested in the topic at the end of World War II, none, other than the Trades Union Congress (T.U.C.) has continued to pronounce on the matter. 39 40 The T.U.C. has continued to press its points and it is clearly willing to go on doing this, until some action results. This powerful body of organised opinion favours the expansion of the present Factory Inspectorate to enforce an extended code of legislation. The Inspectorate would have at its disposal a laboratory service, somewhat similar to the American Federal Industrial Hygeine Service. This would allow the Inspectorate to undertake much more measured and objective control of environmental conditions. The whole scheme would be initially, of an inspectorial nature, as the experience of the T.U.C. leads it to believe that the small employer, in particular, cannot, and will not, co-operate in any other type of organisation. There will be need for a more extended medical supervision of a different type later, but this must wait upon expanded training facilities and the availability of more staff. Above all is needed a strong lead from the Government.

Apart from this there is apparently little widespread public interest in the matter. Sporadic 41 press comment continues and occasionally a flicker of more intense interest is shown when some new experiment or lurid news item draws attention to the existing situation. 42 43 Perhaps the most significant absence is the lack of comment, proposals or even opposition from any representative body of employers. One organisation, the British Employers' Confederation, did, however, give evidence to the Dale Committee. The occasional prominent industrialist does deliver himself of a comment upon the subject. 44

Despite the lack of comment from corporate bodies of opinion, there is a spate of ideas from private sources, mostly within the profession.

From outside the immediate field of Industrial Health comments have come from M.O's.H. in particular. Some of these have been noted in the previous chapter. In fact, the concept by the M.O's.H. of the function of an I.H.S. is quite different to that which is generally accepted and has been stated. This influences, corresponingly, their attitude to the question of organisation. Metcalfe-Brown, Davies and Arnold Brown have made some of the most interesting contributions to this debate, and all have emphasized this different conception of the functions of the I.H.S. Hughes expressed another point of view when he stated that there is not a need for more I.M.O.'s, but a need for more slum clearance of factories. 45 He recognises the need for further clarification on many points, but particularly upon the need to be clear about the position of the I.M.O. Whether he is to be inspector, manager, or advisor, or a mixture of these.

He is careful to distinguish the place of the M.O.H. in any future I.H.S. He suggests that the M.O.H. should act as an officer of central government, and not as the Executive agent of the Local Authority. This, he thinks, may remove some of the anticipated difficulties from management about co-operation with this officer. Finally, he warns against the imposition of a compulsory scheme, which may arouse hostility, and produce less co-operation, than an intial voluntary approach to the problem. He, in this context, raises the interesting point that there may be a case for specific encouragement by tax reliefs etc., of those firms who make adequate health provision. (46)

The case for the Appointed Factory Doctor (33) (47) (A.F.D.) is cogently put by Herford who is supported by Millar. (48) The former's main argument is based upon the vital continuation by means of a joint A.F.D.-School M.O. appointment, of the health supervision of the juvenile from school into industry. This would make him an agent of the Local Authority, and he would carry out in industry, these newly increased duties of this body. (49) He would need to be backed by an Occupational Health Laboratory Service. The doctor would need to be given a statutory appointment to ensure independence and security of tenure and he would be either full-time, or have very limited prior committments. Herford finally realises that there is need for experiment and trial with many of these suggestions. Millar puts forward a similar argument, but he thinks that the whole scheme should be put under the direct control of the Ministry of Health.

Amongst those working in industry the controversy centres around the organisational details of an Industrial Health Service. There is general agreement that there should be some form of co-operation with the N.H.S., but opinions vary as to how close this should be, and what form it should take. Wyers recognised the strength of the claim of the M.O.H. who is a specialist; in both preventive medicine and in administration. (50) Tyrer does not believe that any good could come from this form of co-operation as the Local Authorities are unsuited to be the controlling bodies, and their staffs are untrained for the work. (51) He thinks that a direct control of the whole service by either, the Regional Hospital Board or the Ministry of Labour, is the answer. Capel thinks that the time is far from ripe to establish a service by legislation and would like the I.M.O. to have more elaborate treatment facilities at his disposal. (52) Faulkner Hudson, in a thoughtful review of the problems facing the establishment of an I.H.S., reflects that the basic point, namely the true nature of "health", is still in need of definition. (53) He, further, points out that the responsibility of maintaining this unknown quantity, in an industrial environment rests squarely upon the shoulders of industrial management. Until management shows greater willingness to accept this burden there is little that can be achieved of a lasting constructive nature. Schilling suggests the more rational approach of finding out where the need is greatest and then concentrating upon this the limited resources available.[36] Stewart, in a reasoned review of the whole period of development, since the war, insists that the opportunity exists at the moment for fact-finding and experiment.[54] There is neither a receptive opinion in industry, nor the necessary information available to embark upon nation-wide action. ~~[illegible] is of the same opinion~~.

Perhaps the nearest approach to the official Government position on the matter comes from Ince.[55] He emphasizes that the next step should be in expanding the I.H.S. to include the small and medium sized factories. To achieve this he would rely upon employers voluntarily employing their existing Appointed Factory Doctors upon an extended range of duties. This would mean that greater educational opportunities for G.P.'s, and probably nurses, would have to be provided. Nevertheless, there is still a great need for research into organisational problems, and particularly into the problems of providing an I.H.S. for non-industrial establishments such as offices, transport, hotels, and the like. Finally, any experiment, to be worthy of consideration as the prototype of a national I.H.S., must have an organisation capable of expansion, by legislation, into a comprehensive scheme covering all those factories which have, up until that time, not joined it voluntarily.

It is to be noted, that nowhere, in the past have the financial aspects of any suggested scheme been thoroughly considered. Perhaps such an exercise is considered to be too theoretical without having, as its basis, experience with an existing service. But, to encourage the industrialist to take more than a passing interest in any proposals, more detailed attention will need to be given, in the future, to this vital point.

The plan which, it is considered, will be capable of leading to an interesting experiment in the design of an Industrial Health Service is outlined in Chapter 20. Many features of this have been drawn from the opinions stated above. Much of it, however, has been developed after conversations on the topic during visits to factories. The opinions, as found on Tyneside, of managements and organised labour, have been given due weight when this design was being developed.

## Existing Co-operative Industrial Health Services in Great Britain.

There exists in Great Britain today several experimental Industrial Health Services which are designed to answer the needs of the small and medium sized factories. To a greater, or lesser degree they attempt to provide an answer to many of the difficulties this question raises. The manner in which they do this will be examined. The experience gained with these projects can then be used to benefit the proposed organisation of Chapter 20.

The best known of these voluntary co-operative I.H.S.'s started in 1947, operates on a Trading Estate at Slough. (56) This estate, a private pre-war venture, contains a wide range of factory sizes and activities. In 1956 there were 178 firms employing 17,652 people, covered by this service. The breakdown of factories by size is not available, but it is known that the majority of these firms employ under fifty people, and many of them have under 20 employees. It must be emphasized that all these, relatively, new factories are located within the definitely circumscribed area of a Trading Estate, where road communications are good, and where, by average British standards, the working conditions are good. There is no heavy manufacturing industry upon the estate, such as steel making or ship-building. Much of the work that is done here is of the semi-skilled, mass production type. This service, therefore, does not have to contend with the difficulties facing a similar service being newly formed, to serve an older established industrial area. In this latter, and much more common type of area, industry is arranged in a chaotic geographic hotchpotch, being intermixed with housing, and joined by narrow roads passing through shopping centres, and crossing railways and rivers. The factories are mixed in size, in type of industrial activity, and in age, to an extent never found on any Trading Estate. A service being developed in such an area would have the extra handicaps of local geography, distance, communications and a wider range of industry and environmental conditions. Despite the impossibility of using the Slough experiment to generalise upon for the whole of British Industry, there are many valuable lessons to be learned from it. The vigour of the Medical Director has proved that the owner of the smaller factory can be made to take a responsible interest in the health of his employees. The continued operation of the service testifies to this. This has been achieved, however, with several aids which cannot necessarily be expected to apply to any subsequent scheme. The Slough Service was heavily supported, financially and materially, at its inception. This allowed it to obtain a range of equipment, and buildings, which considerably widened the range of services it could give.

Since then its current finances have continued to be directly and indirectly, supported to a considerable extent. It would appear that the annual charge made to the member firms is roughly only half of the actual total cost of running the service. This direct, current financial aid comes, partly from grants from benefactors and in part, from the local R.H.B. The Slough service also operates, for the R.H.B., a Regional Rehabilitation Centre. The services and facilities offered by this centre are at the direct disposal of the staff and member firms of the Service. There is thus considerable indirect help from this source to the factory-floor service. All these factors add up to make this service an attractive proposition for the small factory owner. It is highly unlikely that such an attractive service, both in cost and range of provisions, could be provided, in the future, by a voluntary co-operative Service without either, heavy assistance from private benefactors or, co-operation, in some form, from the N.H.S.

The detailed range and scope of the service provided by the Slouth scheme has been adequately described in the literature.[58][59] An outline only will be given here and this should serve to make intelligible the comments made about the service. The preventive and curative work is divided on a geographic basis. There is a large central clinic which deals with the treatment of casualties etc. from the immediately surrounding factories. This building also contains other central facilties such as physiotherapy, occupational therapy and social service departments, records and other general clinical facilities, including an X-ray plant. In the geographic sub-divisions of the Estate there are smaller treatment and examination centres which deal with the routine clinical work of the service. There is also a travelling mobile surgery which attends those factories slightly more remote from the peripheral treatment posts. The environmental control is based upon a system of regular routine inspections by the nurses of the service. These are backed up by less frequent routine inspections by the I.M.O.'s who also visit a factory when the nurse reports any untoward deviation.

The treatment side of the service has the benefit of the consultant advice of the R.H.B, at the Central Clinic and the Rehabilitation Centre. The work of environmental control has a specialist Occupational Hygeine Team at its disposal.[60][61] This is made up of a clinician and an Occupational Health Engineer. It had, until recently, its laboratories in the London School of Hygeine and Tropical Medicine, and the Engineer was a member of the staff of this institution.

The work of this experiment is divided in effect into two tiers. The factory tier is staffed by full-time medical and nursing staff, and provides the day-to-day routine services of the Scheme.

This level has at its call a consultant clinical, and scientific, tier upon whose assistance it can call when needed. Much of this consultant advice is provided by outside bodies and there is, apparently, little financial burden, from these thrown directly upon the factory level service. The overall financial situation, despite this aid, has already been noted.

There is considerable emphasis placed in the Slough scheme upon the treatment aspect of the work, and this indeed seems to take up a large fraction of the total time of the staff. There are several reasons for this, all of which would not necessarily be operative in other areas. There was, for example, no immediately accessible hospital casualty service in Slough, when this scheme began in 1947. The service had to provide this. The managements of the member firms have come to value this aspect of the work so highly that the Service continues to deal with nearly all of the minor illnesses and traumatic injuries occurring on the Estate. It was because of this gap which it filled in the absence of a hospital casualty department, that the Service was so popular at the outset. This leads to the present condusion, of the Medical Director, that, in order to "sell" an I.H.S. to the smaller employer, an efficient and speedy casualty treatment service must be the first priority.[56] Whether this argument applies in areas which are better served by hospitals at the outset, is less certain. Despite this there is no reasonable doubt that any future I.H.S., even in an area well served by hospital casualty departments, will have to contend with a certain amount of treatment of minor illnesses and injuries. The treatment of these conditions in the factory is more economic and effective than it would be in a relatively distant hospital.

Despite the~~se~~ qualifications, already placed upon the impossibility of generalising on the Slough experiment it has demonstrated effectively several points. An efficient treatment service for minor ailments is needed, either close to, or in each factory. This can be staffed with trained nurses who are only thinly supervised by medical staff. Much of the routine environmental control can, similarly, be effectively carried out by the same nurses backed by a few I.M.O.'s. Both of these aspects of an I.H.S. need access to consultant advice for help with problems beyond their capacity. It is within the powers of the R.H.B. to provide part, at least, of this advice. There are difficulties involved in basing the scientific part of the Occupational Hygeine team upon a University, which are referred to later. It is in financial matters that perhaps, Slough points the most important lesson. To run an I.H.S. of this scale and complexity, even with aid in the shape of cash and services from the R.H.B., is an expensive matter. It costs about £2.10.0 per employee covered per annum.[57] This charge would be unattractive to the smaller employer and, as a result, the service has had to be subsidised to a considerable degree by outside beneficiaries, in order to allow it to continue in its present form.

There are similar services, but perhaps less complex, running on trading estates at Bridgend and Hillingdon. These all present somewhat similar problems. This type of service, to be made financially attractive to the small employer, has either to reduce the scale of its services and/or staff, or be subsidised by an outside source.

A different type of experiment, with a co-operative I.H.S., which began in 1955, operates in the new town of Harlow in Essex. (43) There are ultimately to be 80,000 inhabitants of this town, and the factories which will employ many of them are to be located on two adjacent trading estates. One only of these is in operation at the moment, and it is here that this I.H.S. is working. The same qualifications, about operations on a Trading Estate, apply to the Harlow scheme, as apply to the Slough experiment. The factories are new, the working conditions are therefore good; the industry is concentrated in a small area which has good communications. This Industrial Health Service is staffed by general practioners who serve as part-time I.M.O.'s. (62) General Practice in this town is conducted exclusively in partnerships, and from lavishly equipped health centres. Each of these I.M.O.'s belongs to one of the partnerships. There are altogether eight general practioner-I.M.O.'s and two nurses, who together cover some 26 factories employing a total of 4,162 persons. Each G.P. has alloted to him a number of factories for which he is responsible. Here he carries out his routine evironmental and personal preventive duties and such clinical treatment service, of a non-emergency nature, as may seem necessary. (63) The emergency treatment work is mainly performed by the nursing staff, who are supervised by the duty I.M.O. of-the-day. The roster of duty-work circulates through all the I.M.O.'s who spend, in turn, the factory working-hours of each day on duty. Because of the partnership structure of General Practice in Harlow, and of the compactness and ease of communication, this arrangement seems to work very smoothly. Before the service began some of the I.M.O.'s had a brief period of training at Slough, and all attended a week-end course in Industrial Medicine. The whole service is administred and was indeed developed, by a dynamic Medical Director, who acts as the main consultant for the service. There are two attending clinical consultants who are paid privately. None of the facilities of this Service are directly or indirectly financed or supplied by the National Health Service. The whole Service is financed by a per capita annual charge on the employers. This at present is £2 per head, of nearly all population covered by the service. (62) This service, like Slough, has received extensive financial assistance from the

Nuffield benefactions with its initial capital costs, none of which fall on the member firms. There is, in fact, a current financial subsidy from the Nuffield Trust, but this is in the nature of continuing help with the initial capital committments. These costs will continue during the first few years of the service. Thereafter the Service is designed to become financially self-supporting at a charge of £2 per head per annum.(63)

This is a most interesting development. There is little doubt that the general practioners are proving able to handle the environmental problems arising in their factories. Much of their ability to do this is, however, due to the personal energy and encouragement, of the Medical Director, and how they would fare under different circumstances has yet to be shown. There is some doubt as to the ability to stablise the cost of the service to the firms at the present level. There does not seem to have been much initial resistance to the scheme on the score of the cost. This service shows a possible way to co-operation between another arm of the N.H.S. and an I.H.S. It is impossible to predict how co-operation with the Local Health Authority, and the local hospital will be worked out in Harlow. There is little doubt that again the absence of a nearby hospital, and the resulting inability to attend rapidly to casualties has helped this scheme to appear more attractive to the employers.

There is a third, and final experimental type of co-operative I.H;S. which has recently been described.(64) Tombleson shows that a group of small and medium sized engineering firms in Bedford, as early as 1943 co-operated to form an I.H.S. There were some 14 factories employing some 6,375 workers covered by this scheme in 1956. This Service contents itself with employing a full time medical officer alone, and the only expense, other than his salary, is the cost of other incidentals such as stationery. The individual firms are responsible for employing their own nursing and/or auxiliary staff. There are six trained nurses, and three full time auxiliaries in six factories, and the rest of the staff consists of part-time, first-aid auxiliaries. Most of the I.M.O.'s time is apparently devoted to clinical work, and little environmental control is attempted. The total cost of the service is not available.

Each of these three examples of co-operative I.H.S.'s is different in some respect, and they have been presented in a degreasing scale of complexity and cost. None of them supplies an adequate answer to all the problems inolved in planning an I.H.S. The first two have severe limitations placed upon their ultimate value as prototypes by their location and nature of the industry they serve. The last example is apparently, deliberately limited to the engineering industry. It is considered that the mode of organisation of this type of I.H.S. is ideally treated by location, as opposed to industries. It is suggested, also, that this latter example is too rudimentary and probably wasteful of nursing time. It would appear that different member firms receive differing standards of care from their separate nursing and auxiliary staffs. However, it is probably cheaper to run than the other two examples. It is impossible to be dogmatic about the lessons to be learnt from the Harlow Service, as it has been running for only a short time. It has been shown that G.P.'s are capable of being used satisfactorily in an I.H.S. Whether the particularly favourable conditions existing in this new town would allow this method of medical staffing to be duplicated in a more typical industrial area, remains open to speculation. The Slough service offers a wide and comprehensive range of services. It is undoubtedly expensive and is probably too expensive for this type of service to be generally applicable. It does clearly show the way in which future co-operation between the R.H.B. and the I.H.S. could be established. This is not to say that it is considered that such co-operation need necessarily include the splendid rehabilitation centre it has been possible to establish there. Slough has also shown the great value of an Occupational Hygeine Team, and its essentiality to any efficient I.H.S.

The experience with financing these schemes still leaves open the answer to this part of the general problem. It is, apparently, necessary for some form of assistance to be given to an I.H.S. if it is to supply an adequate range of services, and still be within the limits of economic possibility for smaller firms. It is suggested that the direct financial burden to industry should be reduced by providing part of the service through the N.H.S. This part could must appropriately be the clinical consultant tier, and the scientific investigation facilities. The purely factory level service should be provided directly by the employer, as this is obviously his responsibility, and although he does not recognise this yet, he would prefer to retain it, and honour it if the alternative were its assumption by the State.

The lessons learnt from personal contact with the first two of these examples of I.H.S., and, with a wide range of private industrial health services in the course of this Survey are embodied in the next chapters.

There are numerous descriptions available of the I.H.S.'s of private and nationalised (65)(66)(67)(68) industries. The majority of these are organised upon the basis of an industrial or commercial linkage. Only a rare example of a private scheme contains a wide range of factory functions and sizes within a limited geographic area. For the purpose of helping with the design of this type of I.H.S. these examples are of limited value. Such descriptions have, however, helped with the definition of the function of an I.H.S., and have served to reinforce some of the lessons learnt from the co-operative schemes.

The experience of other countries in the development of their co-operative type of I.H.S. is also of limited value. Differing systems of existing health care, differing social values, and different degrees of economic development, are all factors, which make it difficult to use the experience of one country in helping another. There is a voluminous collection of literature on the subject of "small-plant" health services from American sources. (69)(70)(71)(72) The development of interest in this subject was chronologically the same as it was in Great Britain. In the U.S.A., however, there is no newly developed administrative framework covering the whole range of medical services outside industry, and so there would appear to have been greater room for experiment both with the internal design of these services and with their relationship with other health agencies. There is, therefore, in the United States, a richly varied range of types of I.H.S. These range from the almost completely state organised and financially aided I.H.S. in Connecticut, which has a close connection with the Yale Medical School for teaching purposes, to the service which is completely financed by organised labour. The former is a service which resembles the British conception of a mainly preventive service whilst the latter is almost entirely a comprehensive and lavish clincical care scheme. In between these two extremes there is the service of the nation-wide corporation, the city organised I.H.S., the purely voluntary co-operative I.H.S. organised by local groups of firms, and several combinations on these patterns. The wealth of detail and breadth of imagination devoted to these plans is overwhelming. Overall, it seems clear, that the differing American conception of Industrial Health, includes in it much more of clinical medicine than we would include. The American plans are mostly different in function, and thus in design, to what would be possible in Britain, against the background of organised care under the N.H.S. Of the numerous reports from other countries about both State and private I.H.S., and about inspectorial systems, the Norwegian I.H.S. offers the most useful experience from a British point of view. (73) In Norway the post-war urge to establish a nation-wide comprehensive Industrial Health Service was also present, but here it resulted in concrete voluntary co-operative action on the part of the whole of Norwegian Industry. This is admittedly not large by comparison with British Industry. There is no legislative code, but a tripartite Council issues standards of practice for guidance. The service is, apparently, staffed purely by doctors who are local general practioners with experience in preventive medicine. The appointments are openly advertised and competed for. Considerable attention is given to routine medical examinations of all workpeople, as well as to environmental inspection. The whole cost of the scheme is borne by the individual employers. In 1953 there were 653 plants employing 186,490 workers included in this scheme. None of these companies was coerced by legislation into joining, and all were voluntary members. All carried the costs of their individual provisions, which were kept to at least the minimum standards prescribed by the Central Council. The average cost per head of the population covered is 20-30 shillings per annum. Because of the purely voluntary nature of this scheme there is little formal co-operation with the other main preventive service - the Public Health Service. Much of the work of this service resembles that which it is suggested as being appropriate for an I.H.S. in Great Britain. There is a notable absence of nursing staff employed by this scheme, although it is presumed, that individual firms continue to make their own arrangements in this respect. Whether a fully comprehensive, and nation wide service would result in British society, from such a wholly voluntary pattern is doubtful. Furthermore, there is a considerable difference between the size and industrial pattern of Norwegian factories and those in Britain, and this British problem is, thus, much more complex. Nevertheless, the achievement of Norway in extending its service to this extent is something to be greatly admired and if possible emulated.

The elements of a completely organised State service in a society similar to British are found in New Zealand.(74) Here the Medical Officers of the Division of Occupational Health of the Central Department of Health, have, until recently been almost entirely engaged upon inspectorial duties under the New Zealand Factories Act 1946. They have, however, at their disposal two valuable additional services, which are absent in Britain. There is a central laboratory service which assists with the solution of environmental problems. Just as important, there is a trained cadre of Occupational Health Nurses who inspect the factories regularly and perform simple clinical and environmental diagnostic procedures. The doctors and nurses, as well as being inspectors, have the valuable additional role of advisors and teachers. Much of their time is taken up with lecturing and with demonstrations of preventive measures. Recently the department has entered the curative field, and tentative steps are being taken for the Division to provide treatment clinics in the main industrial centres. Like Norway, however, this takes place against the background of a different social pattern, and a much less extensive and complex industrial picture. It is doubted if this experience has much to offer Britain at the moment.

In Conclusion.

The pattern of development of the concept of the function and the form of individual and national Industrial Health Services has been outlined. It is, probably, generally admitted that today in Britain the immediate organisation of a national I.H.S., whilst its ultimate functions are agreed upon, is prevented by a number of difficulties. The principal one appears to be the lack of adequate data from experiments about the most acceptable and efficient ultimate form of such a service. Those experiments that are in being already provide much useful data but are few in number, and have considerable limitations. The experience of other countries in this respect is of limited value.

In the next two paragraphs the function and form of an I.H.S. for a large region containing a mixture of types and sizes of factories is outlined. Much of what has been considered in this chapter is included in these outlines

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# Chapter 19.

## The Functions of an Industrial Health Service(I.H.S.)

From what has been described in the preceding chapter it is obvious that sufficient thought has been given, in the past, to the subject of Industrial Health Services to allow a definite estimate to be made of the functions of such a service. The two main divisions of activity of such an I.H.S. are curative and preventive. From what has been outlined already, it will appear obvious that the former type of work should play only a minor part in the overall activities. Accordingly this part of the subject will be dealt with first.

### Curative Services.

The basic ethical aim of any medical practitioner is to attempt to cure or relieve his patient, as quickly and as effectively as he is able so to do. This principle is undisputed, but in the present context it is necessary to give it further consideration. Any form of medical treatment once begun is best carried out in its entirity by the doctor who has the primary clinical responsibility for the patient. In most instances this person is the family doctor, who diagnoses the cause of the illness and then treats it either in the patients' own home or his own surgery. Occasions arise when the diagnosis is in doubt, or where the optimum form of treatment can be obtained only from those specialist facilities provided by a hospital. In these instances, the clinical responsibility for the patient's return to health is borne, for a longer or shorter period, by the clinician to whom the patient has been referred. Nevertheless, when this period of hospital care is complete, the responsibility reverts once more to the family doctor. The essence of the latter's primary responsibility for the patient would seem to be hinged upon his ready access to the patient in his (the patient's) home.(It is here most illnesses begin). Any illness, therefore, which necessitates, at any time in its course, the confinement of the patient to his home becomes, during that time, the responsibility of the family doctor. It is in the best interests of the patient that the family doctor should bear this primary clinical responsibility for him.

From the curative viewpoint of an Industrial Health Service, it is this situation that must dominate all activity. Emergency treatment and, if necessary, referral elsewhere of a person taken unexpectedly ill or seriously injured at work, is obviously within the clinical responsibility of whatever medical man is initially called to attend the patient. The treatment of such an illness at once is obviously in the best interests of the patient. It often happens, in more minor illnesses and accidents, that this initial treatment is all that is required, and the episode ends here. Any further investigation or treatment which is needed, and which may necessitate a greater or longer period of confinement to the home, immediately becomes the clinical responsibility of the family doctor. Under these circumstances the curative activities of an Industrial Health Service become limited.

There are, of course, practical qualifications to be placed upon this rigid ethical position. Nothing that has been stated need be taken to exclude the provision of simple facilities which may assist the family doctor to further the best interests of his patient, (namely to bring about as speedy and as complete a recovery as is possible). Thus, often an early, and clinically permissible, return to work relieves a patient of considerable financial anxiety, and speeds his rehabilitation. If the provision of suitable supervisory and treatment facilities at work furthers this aim, then the best interests of the patientare being served. On the other hand, the facilities needed to complete his recovery may be of such a nature that they should be under the control of an appropriately trained and qualified hospital clinician. It is not, in these instances, in the best interests of the patient to allow such treatment to be given, other than in the appropriate place and manner.

Similarly, the making of an early and accurate diagnosis of an illness is in the patient's best interests. Such a diagnosis may reveal a simple condition which can be readily alleviated, where there is little possibility of the patient having to be confined to his home during its management; then it would appear rational and logical to give the appropriate treatment at once, and bring about the quickest possible alleviation of the illness. It also seems permissible under these circumstances to begin some treatment which may have to be continued at home, provided this is the generally accepted and appropriate treatment for that condition. The further instalments of this can then be given at home by the family doctor, who assumes responsibility for the case. He should be provided with the fullest information about the findings and the treatment. If it is in the best interests of the patient to continue at work, and the G.P. takes, or concurrs in, this decision, then the I.H.S. acting as the agent of the family doctor, can well continue the treatment which it began. Finally a diagnosis may be made, in the course of some routine examination, of a condition which it is suspected, needs closer attention and investigation. Under these circumstances it is, of course, the family doctor who must bear the burden of the continued clinical responaibility.

In the above situations the position of an Industrial Medical Officer (I.M.O.) is further complicated by his relationship with another interested party; the industrial organisation which is his employer. The position of the full-time I.M.O. is potentially a more difficult one than that of his part-time colleague, who has alternative means of livelihood available to him. The points now to be considered apply in this context, to a greater or lesser degree, to all doctors employed by industrial organisations. No company employs a medical officer to conduct an I.H.S., unless it believes that it will receive some tangible benefit in return. The firm may wish for no more obvious return than the preservation of the health of its employees; this will in turn bring it the benefit of a stable and continuously available work-force. On the other extreme, some companies assess their I.H.S. upon a strictly financial basis; they think they can estimate the return received from this part of the organisation as accurately, in terms of cash, as the returns from any production or sales department. No matter what the underlying motives of employers are, it is essential that the I.M.O. should be treated as a skilled, but highly individual member of the management team, i.e. as the sole source of expert opinion upon his subject - Industrial Health. In these circumstances then, it should be incumbent upon the I.M.O. to stress the point that the prime ethical consideration in the provision of treatment facilities is "What is best for the patient?" If the patient is a contented and loyal member of the companies' staff, that which is in the patient's best interests is also in the best interests of his employers. The employing company, however, very often feels that the duty of their I.H.S. is to serve the companies' interests first, and only consider the patient's interests second to these. It is when the employers adopt this latter attitude that they demand an increased range of treatment facilities for the employees. These facilities, they feel, can often circumvent the time wasting delays which occur when the primary clinical responsibility is passed to the family doctor. It is more in the firm's interests for their I.H.S. to retain clinical control, and to embark unfettered upon a complex course of treatment, which can be continued whilst the man is at work, and so is still productive. The non-biologically trained managements do not realise that it is a hazardous undertaking to predict at the beginning of any illness that it will continue to remain so trivial. That is, the patient will never at any time in its course, need to be confined to his home with it. If this eventuality happens, the burden of responsibility for the continued management of the case is thrown upon the family doctor - someone who up until that time has had no responsibility for, or knowledge of it. Under such circumstances the unity of clinical responsibility has been destroyed, and the best interests of the patient have not been safeguarded, and, it is submitted, neither have the real and long term interests of the management. Any attempt to extend the simple scheme of treatment facilities to be outlined does not further this ethical basis of the curative aspect of an I.H.S. The pressure from managements to do this is often strong. They cannot see the important reason why such facilities should be limited. These pressures must be resisted.

It is suggested that the following types of treatment alone are suited to the curative function of an I.H.S.

a). Emergency and First Aid treatment of all injuries and minor ailments occurring at work. This often means a single and isolated treatment, such as the giving of a mild analgesic or the dressing of an abrasion. Where a simple laceration occurs, it is best sutured at once; there must be adequate facilities for this to be done under sterile conditions. Surgical procedures which are so extensive that they will require observation at home and a period off work, are best dealt with by the local [redacted] hospital. The clinical control can then be passed to the family doctor after the hospital procedure has been completed. Any injury or illness which, it is suspected, will require a period of treatment at home should only be given emergency or supportive treatment, before the appropriate referral.

b). Other treatment facilities. As has been suggested, it is often in the best interests of the patient for him to return to work as soon as it is clinically justifiable for him to do so. This is a decision to be taken by the G.P. It may be that a return to work is delayed, not because of the patient's physical inability to cope with his job, but simply because no regular medical supervision and care is available for him at work. In these circumstances the G.P. usually decides that caution is the better course, and the man is needlessly kept from work until this interim convalescent period is passed. It is the function of an I.H.S. to provide this care during this period, and to provide, where feasible, those therapeutic and rehabilitation procedures that the G.P. and/or clinician recommend. Similarly, if an illness, whether occurring at work or elsewhere, is not in itself sufficiently handicapping to keep a person off work, it is the duty of an I.H.S. to provide suitable facilities to allow the patients to continue at work. Again the family doctor has the responsibility of suggesting this course, and of prescribing the appropriate treatment. He should in all these dealings have the skilled advice and environmental knowledge of the I.M.O. to help him.

c). <u>Rehabilitation.</u> If a patient is to be encouraged to return to work as soon as his G.P. considers it advisable, then some form of rehabilitation service must be provided by an I.H.S. The delay in return to work of a convalescent person is sometimes caused by absence at work of facilities for his continued treatment. It is more often due to the fact that the convalsecent patient is not, as yet, fully physically capable of performing his original job. To cover this interim convalescent period it is the duty of an I.H.S. to provide specially adapted occupations, using scientifically proved techniques, to further the return to full and active productive life. It is assumed in this that a person is at his happiest and healthiest when he is regularly engaged upon some form of productive or creative activity. This, to most persons, is their daily work. It would, therefore, appear to be in their best interests to return to this as soon as permissible.

d). <u>Diagnostic Facilities.</u> Strictly speaking, the majority of the diagnostic facilities which fall within the province of an I.H.S., are most properly included within its preventive aspect. Obviously, however, before any treatment of a patient is begun, a diagnosis is usually made. If the treatment of a patient is of a diagnosed triviality, which requires no referral, then the matter ends here. If the continuing responsibility of the case is being passed elsewhere, then the opinion of the I.M.O. about the condition should be forwarded with the patient. The question really at issue is to what lengths should an I.H.S. go in providing aids to clinical diagnosis which are available, but often at some inconvenience, elsewhere. It is suggested that the [redacted] principle in this instance should be, that only those aids should be provided which help the I.M.O. to come to a definite conclusion, as to whether the condition is one which lies within his <u>therapeutic province</u> or not. There is no necessity to provide facilities sufficient to make a complete diagnosis. This position is further clarified when it is realised that many diagnostic aids are sophisticated clinical tools, which only find economical frequency of use in hospitals.

Thus, it is submitted that, for example, simple urinal analysis is within the province of an I.H.S., but complex biochemical estimations are beyond its functions. Because of the frequency of traumatic injuries in some industries, with their likelihood of associated osseous damage, the use of a small diagnostic X-Ray unit is considered justifiable, within this principle. Most soft-tissue traumatic injuries are radiologically examined at the present time. So often these patients must be referred to a hospital for this precautionary examination to be done. The rapid production of an X-Ray plate of a damaged foot, for example, often allows an I.M.O. to take an accurate decision immediately, as to whether the case is outside his defined area of responsibility or not.

In Summary.

The ethical principle behind the provision of treatment facilities by an I.H.S. is that the best interests of the patient must always be served first. Divided clinical control of a patient is not in his best interests. Thus, where any possibility arises, that he will have to be treated at home, during any part of his illness, the clinical responsibility should be passed to his family doctor. This doctor can then decide when the man is sufficiently fit to return to work. If treatment is to be continued whilst at work, the family doctor must either prescribe or concur in its continuance. Nothing of this excludes emergency treatment or the treatment of those trivialities which only require a simple remedy. The I.H.S. must provide a rehabilitation service to be used at the discretion of the family doctor, aided by the skilled advice and local knowledge of the I.M.O. This is a measure which serves the patient's best interests, as it is believed that recovery is aided by a graduated return to full productive or creative activity. Finally some simple diagnostic aids should be provided to allow the I.M.O. to discriminate between those cases which lie within, and those cases which lie without, his strictly limited therapeutic field.

It must be stressed to managements that the best interests of the employing company are indeed best served, by ensuring that the first aim of any I.H.S. is to further the interests of its patients - their employees.

## Preventive Functions of an I.H.S.

There is little dispute that a main purpose of the discipline of Industrial Health is to study ways to prevent the occurrence of occupationally induced illnesses. This aspect of the work should dominate the whole concept of the administrative vehicle used to apply this knowledge. As this part of the functions of an I.H.S. does not primarily involve any clinical responsibility for the treatment of sick patients, there is little need, in the present context, to examine at length its ethical basis.

It is convenient to divide the preventive aspect of the practice of Industrial Health into two parts. One is concerned with the detection and control of occupationally induced morbid deviations from health, occurring in people at work. The other is with the measurement and control of conditions in the working environment, which are hazardous to human health. This also includes the assessment of any new and potentially hazardous additions to that environment. Obviously these two deviations widely impinge upon each others territory.

I. <u>Occupational Health Control.</u>

The term Occupational Health is used here to denote the positive state of well-being of the individual, in relation to actual or potential threats to this state, inherent in his occupation. <u>Personal</u> measures aimed at achieving or maintaining this ideal symbiotic state are alone considered under this heading.

a). <u>Pre-employment examinations.</u> It is essential to know the existing state of the health of an individual coming, for the first time, under the care of the I.H.S. An initial physical assessment allows an easily referrable record to be made of his condition. This can be used for comparative purposes, at a later date, should any deviation from his initial state be suspected. Furthermore, it allows a more objective approach to be made to the problems of occupational placement. When the I.H.S. is in full possession of a detailed environmental study of the plant where the potential employee will work, it is possible to give a specific recommendation about the job-placement of the new employee. A suitable occupation can be chosen after consideration has been given to any morbid condition found upon examination. These initial entry assessments allow the I.M.O. to decide which of the population of the factory will require more detailed and regular medical supervision, in relation to the known hazards of that plant.

b). <u>Routine Medical Examinations.</u> The place of routine personal medical examinations, at regular intervals, should not be accepted unreservedly as an essential part of health control. There has been, in the past, an undoubtedly uncritical approach to this topic. There is too little knowledge available about the incidence of actionable morbid conditions occurring in differing age and occupational groups, for the place of these examinations to be objectively assessed. Thus until recently, it has been common, particularly in the Armed Forces, for an annual medical examination to be performed no matter the age, past history, and occupation of the individual. It is now realised that this non-specific approach resulted in many unprofitable, and time-consuming examinations being done, upon population groups whose natural expectancy of morbid conditions was low. Furthermore, the vast numbers of examinations required, with the non-selective approach, became a drain upon the available medical time. Thus, in order to carry out this volume of work, a large number of necessarily superficial examinations had to be performed. A more selective approach is now admitted to be needed, and this is precisely the point which gives rise to uncertainty about the place of this type of procedure in an I.H.S. It is perhaps sufficient to say that a combination of information, gained from the pre-employment examinations, and from the environmental survey of the factory, should be used for the individual policy for each plant on this matter.

c). <u>Routine Medical Examinations for Special Occupational Groups.</u>

The statement, in the last paragraph about the usefulness of the routine annual medical examinations, as a personal preventive feature of an I.H.S., is now to receive some qualification. There are many well known toxicological hazards to health which, in part, are controlled by the routine examination of the individual exposed to them. Many of these hazards, such as lead and chrome, are covered by the Factories Acts, and the procedures required are detailed by regulations. There are many other occupational hazards that do not require statutory supervision and, yet, they are known, or suspected hazards to health. This range of hazards is already wide and with rapidly increasing technological developments, will increase. Thus, new hazards, such as the atomic radiations, require their users to be closely controlled.

The increasing complexity of modern industry means that increasing numbers and types of highly specialised technologists are being employed. In some plants, there may be only one person who has the requisite skill and knowledge to undertake responsibility for a vital stage in the process. His lapse into avoidable illness may throw the productivity of a highly complex plant employing hundreds of healthy people, badly out of gear. This man must be protected from any such breakdown, because of his importance. This is the duty of an I.H.S.

All in all the number of workpeople exposed to occupational hazards of one type and another, ranging from simple inorganic poisons to the strain of unendureable responsibilities, is increasing. It is probable, that from these groups, the true indication will come as to which people require the regular physical and psychological assessment mentioned above, and at what intervals this should be done.

d). Medical Supervision of "Vulnerable" Groups.

There are working in every factory a minority of people who, because of their age or disability, are known to be prone to lapse into ill-health. The Legislature has recognised its responsibility to protect in varying respects, two of the groups, namely juveniles under the age of eighteen, and women. There are other groups who are not so protected by statute, such as the elderly and many types of disabled persons. It is considered to be a function of an I.H.S. to give special attention to these people, regardless of their exposure or not to any specific occupational hazard. The very fact that, all other things being equal, there tends to be more sickness amongst them, than among other groups, should make them the focus of special supervision. The detailed form of this supervision will, of course, depend upon the type of vulnerability, the job, and so on. It cannot be detailed in advance. It will be seen that the preceding group can be made to blend into this group, just as this group of "Vulnerables" has something in common with the next group of people, who should receive special care from an I.H.S.

e). Supervision upon return to work after sickness absence.

It should be the duty of an I.H.S. to ensure that every employee, who returns to employment after a period of sickness absence, should be seen before he is allowed to start work, by a member of either medical or nursing staff of the service. This rule applies to all who have given sickness as a cause for absence, no matter how short that absence may be. There are many reasons for this procedure. It is essential that a record be made of the sickness absence experience of all employees, together with a roughly accurate diagnosis of the illness. This allows valuable epidemiological material to be accumulated, and may be useful, after analysis, in tracing some hitherto unsuspected environmental hazard. Furthermore, such records are a useful administrative method of checking the efficiency of the service. The most important reason for this procedure is to ensure that the person returning to work is sufficiently fit to do so. If temporarily not fit enough for his old occupation, a job which he is capable of doing, whilst he regains his former capacity, must be recommended. If permanently unfit for his old occupation, the type of job which he is capable of being trained to do in the future must be outlined. Where it is possible to develop a comprehensive rehabilitation scheme, it is this examination that will determine the initial course of his rehabilitative management.

f). Other types of Medical Supervision.

There are several other types of medical examination and personal supervision that are required of an I.H.S. Frequently an industrial concern provides a pension scheme, either contributory or non-contributory for its employees. Before joining the schemes, employees are required to be medically examined. In most instances this situation is covered by the routine pre-employment examination.

The I.H.S. should always hold itself out to give medical advice to an employee, within the overall consideration that the ultimate clinical control rests with his own G.P. There is no reason why an employee should not be examined at his own request, and the relevant results of this examination, if any, forwarded to his family doctor where he, the patient, consents. Similarly, advice can be given to management about the health of an employee should they ask for this, and provided that, the employee himself, gives a specific prior permission for this to be done. It is the duty of the I.H.S. to give advice, based upon the findings of the examinations, to the employee; he then has the responsibility of acting upon that advice or not. There are odd occasions where the employee does not accept this advice, and as a result there is a considerable risk that he will become the cause of injury or illness to others. If, after persuasion, the proferred advice is still ignored, and the patient has been made clearly aware of the selfishness of his attitude, then the I.M.O. must himself bear the responsibility of any further action he takes.

II. Environmental Control.

This part of the preventive work of an I.H.S. is complementary to the personal occupational health measures outlined above. The details of the work will vary greatly with the type and size of the industry or industries under supervision. The scheme of the organisation for environmental control will vary likewise with the skill, knowledge, and resources available to the I.H.S.. Nevertheless, the outline of these functions which follow is considered to be the essential minimum for any comprehensive I.H.S..

a). Environmental Survey.

To assess the effect upon health, of the activities of a factory, it is necessary to make a complete survey of all the industrial processes being carried out there. This means first determining the flow of work of the factory, and the processes and materials used in each stage of production. The location in the factory of each of these stages in production is then plotted. From this, it is necessary to proceed systematically to visit and investigate, on the spot, the actual working conditions. In the first instance, it is only necessary to note the number and occupations of the men working there, and their exposure to any specific local hazards. From the prior knowledge obtained about the work, the known hazards, their optimum control, measures will have been anticipated. At this inspection, therefore, it is necessary to ascertain that these accepted methods of control have been adopted, and that they are working efficiently. If this is not the case, more detailed environmental survey may be needed to determine the true position. The physical conditions of work should be observed, and a rough assessment made of the temperature, ventilation, heating, humidity, lighting and noise of that location in relation to the people working there. This rough empirical survey is performed in each separate geographic division of the whole plant. A comprehensive survey chart can then be built up, and upon it the known and potential hazards marked. This chart serves as a ready source of reference when a possible occupational illness, or an illness aggravated by occupation, is discovered.

b). Routine Environmental Assessments.

It will be realised that a single inspection of a whole plant will not in itself be a sufficient safeguard, for all time, of the health of the employees. A regular systematic inspection of all processes should be continuously in progress in the factory. The actual and potentially hazardous workplaces should be made the subject of more frequent inspections, than the less hazardous or better controlled parts of the plant. Deterioration in established preventive measures is quickly observed, and the efficient working of new ones can be supervised. In this way, also, newly introduced processes can be observed, and any hazards they may contain rapidly discovered. This difficulty about new processes is overcome when management realises that, to introduce new processes, without having them first evaluated by the skilled health personnel which they employ, is an under-employment of that valuable and expensive skill.

c).Specific Environmental Problems.

In the course of the initial survey, or during the routine environmental supervision, there may appear a specific environmental problem, which is beyond the scope of the largely empirical techniques of the factory I.H.S. In these instances, often original problems in environmental control are involved. The advice and investigatory skills of a whole range of different scientists may be required before an adequate solution is found. Thus, for example, it is beyond the scope of the staff of the average factory I.H.S. to perform air analyses of rare metals, or to study the particle size and petrology of dust. For these problems it is necessary to have the use of laboratory facilities, as well as specialist knowledge from the several different sciences which bear upon the problem. The administrative method of solving these problems is discussed when the form of an I.H.S. is considered in the next chapter. Nevertheless, despite the fact that the ultimate solutions are beyond the scope of the I.H.S. of the individual factory, it is still its responsibility to realize initially that these hazards are in existence, and are in need of control. The indicators of the existence of these problems are varied, and only the most constant searching for clues will reveal them early in their existence. In this respect assiduous keeping of personal and environmental records, together with their regular analysis may be a help. The continual supervision of exposed and vulnerable occupational groups may also provide a pointer. Often the workpeople themselves will complain that there is something amiss. The management must be made aware that all changes in, and new introductions of, processes are potentially hazardous until scrutinised. Finally, regular and observant environmental supervision is vital to the early recognition of unsuspected hazards.

d).Other Advisory Functions.

It has already been stated that the I.H.S. is a specialist department of the management team of any factory. It has, however, a completely different relationship, vis-a-vis the employees, than have other members of the team. The uniqueness of this relationship is an asset that makes it a most valuable member of the management, and it should be assiduously preserved. Like other departmental managements it should be responsible for the provision of specialist advice, based on this relationship, to the body corporate of the company. This is a wide and, as yet, largely unexplored field of function. There are obvious subjects upon which it is legitimate for the I.H.S. to offer advice, solicited or otherwise, to the top management of the company. Such things as new health legislation, canteen provision, pension schemes, sick-pay schemes, provision of health facilities, both therapeutic and preventive, and so on, all fall under this heading. The unexplored type of activity springs from the introduction of a human biologist into a community that, at the best, up until now, has had only the services of physical scientists and humanists. Once confidence, in the position of the I.H.S. in a plant, has been established, it may be possible to proffer advice based upon this different approach. A closer and different knowledge can be offered upon such problems as industrial relations, production, attitudes to re-organisation and development, choice of executives and so on. It must never be forgotten that an I.H.S. can only offer <u>advice</u> to management, and that the sphere of executive action is solely that of the senior managerial staff. If the advice is not accepted, the I.H.S. can do no more than ensure that the consequences of failure to follow it are made clearly known to those carrying the executive responsibility.

e). <u>Research.</u>

Finally the I.H.S. must be allowed scope to conduct research into problems which interest its staff, as well as upon the immediately operational matters covered above. Facilities for research must be offered to other bodies where this is practicable. A large field of investigation into inter-personal relationships in industry waits to be explored by teams of appropriately qualified investigators. The factory I.H.S. would provide the ideal framework within which such investigations could be conducted.

# Chapter 20.

## Administrative Outline of a Regional Industrial Health Service.

### I. Administrative Framework of an I.H.S.

The difficulties to be encountered in the design and creation of a Regional I.H.S. have been mentioned in Chapter 18. In summary they can be stated as follows:-

a). The difficulty of providing an efficient and comprehensive service, at reasonable cost, for a large number of small and medium sized factories scattered over a wide geographic area.

b). The relationship between this service and those factories which already provide some form of I.H.S.

c). The relationship between any I.H.S. and the medical and nursing staffs already serving that region.

d). The administrative integration of such an I.H.S. into the existing pattern of medical facilities. Particularly its relation to the National Health Service (N.H.S.), the local authorities and the Ministry of Labour.

In this chapter it is proposed to discuss the abstract design of such a service, in the light of these difficulties. The discussion will use the experience gained from opinion on the subject, and from the pattern of existing services and experiments which have been surveyed in Chapter 18. The practical application of this theoretical design to Tyneside will be considered in the light of information gained from the Survey in the next chapter.

The functions of an I.H.S., as stated in the last chapter, need to be provided with some administrative vehicle for their application. The majority of the work, that it is considered as legitimately within the sphere of an I.H.S. can be performed by the staff of the services within the factory itself, together with the use of the extra local facilities that may be necessary, and are to be described. From what has already been mentioned about the problems of environmental control, it is obvious that, from time to time, problems of some complexity will arise. These will prove to be beyond the scope of the immediate factory or "field" level of the I.H.S. Similar difficulties with complex problems will also arise, occasionally, in the clinical work of the Service. Here the position is complicated by the patients' family doctor having the ultimate responsibility for the control of the clinical problem. There will also appear difficult problems of rehabilitation. These will require prolonged periods of physical and occupational retraining, and this will be quite outside the resources of any single company, or group of companies, forming a local unit of the Regional I.H.S. All these situations require access to specialised skills and facilities for their solution. The incidence of such problems in a single geographic unit of a Regional I.H,S. may well be small. Over a region such as Tyneside, however, these should accumulate into sufficient numbers to need specialist advice to be regularly available. It would seem, therefore, that a small consultative service should be provided on a centralised regional basis. This will allow adequate and speedy solutions to be obtained to the more profound problems that are brought to light by the factory level of the service.

It is with this two-tier structure in mind that the design for an I.H.S. that follows should be considered.

The Consultative I.H.S.

This level of the service should provide the following services.

a) Medical consultative advice from all fields of medical knowledge which have a bearing upon occupational health and illness.

b) Scientific advice from these fields of science and technology which can contribute to the solution of industrial environmental problems.

c). Scientific and clinical facilities and equipment, for the use of the medical and scientific members of any team investigating clinical and/or environmental problems.

a) Medical Consultation.

Much of the work of this tier must be carried out by mixed teams of medical and scientific workers. There will also arise purely clinical problems. Nearly all the clinical consultants now in practice are employees, for most of their time, of the N.H.S. In this situation, there is an opportunity for integration between the existing health services and the proposed I.H.S. It is suggested that the clinicians needed to staff this level of the I.H.S. should be provided by the Regional Hospital Board, on a part-time or sessional basis. Whether this time is spent solely in a hospital or in part within the factories exploring environmental problems, will depand upon the nature of the speciality, and the type of cases with which it has to deal. There would appear to exist here an opportunity for the purely hospital-centred specialist to explore, in the field, the aetiology and management of those of his problems which have an industrial context. The mechanism, by which this is to be achieved, is considered later, when the whole problem, of the integration of existing health services, is explored further.

The nature of the work to be met with would seem to necessitate the employment of several different types of clinicians. Some of them would need to devote more time than others to this type of work. The precise amount of such time, and even the exact suitability of the suggested specialities, has still to be explored. It is submitted that these are problems that cannot be answered by a survey, but which must be answered as a result of practical experience with a pilot health service.

The point to be first settled in this connection is the nature of the relationship between the R.H.B. and the I.H.S. It will be seen below that this presents fewer problems than does the position of the scientific consultants, who must also be employed by the consultative tier.

The present powers of the R.H.B. in these matters would seem to be covered by the National Health Service Act 1946.

Section 3, paragraph 1.

" it shall be the duty of the Minister to provide throughout England and Wales (such facilities) as he considers necessary) to meet all reasonable requirements, accommodation and services of the following description ..........

(b) Medical, nursing and other services required at, or for the purposes of, hospitals

(c) Services of specialists either at hospitals ..... or a clinic"

Section 11, paragraph 4.

The Minister may approve with, or without modifications any scheme submitted to him by the Regional Hospital Board (for the provision of hospital and specialist services as defined above in Section 3, paragraph 1)."

It may be that an interpretation of these powers would show that the Act does not confine the activities of a R.H.B. within the four walls of a hospital. Thus those phrases as underlined in Section 3, paragraph 1, allow the services of specialists to be provided in a "clinic", which is not elsewhere defined, for the purposes of hospitals. These latter purposes could well include, for example, the investigation of the environment in a factory where, the clinician suspects, this environment has contributed to the causation of an illness. Similarly the permissive power given to the R.H.B. to provide services in "clinics" would allow the clinician, with industrial interests, to undertake out-patient work in the factory level I.H.S. Here he would have the benefit of advice from members of the management team of the factory which employs his patient, and from those professional members of the factory tier who care for that factory. The net result may well be a reorientation of the outlook of the attending clinician towards the preventive and social aspects of medicine.

Such a provision of clinical time by the R.H.B. would mean that some formal relationship must be established between the factory tier, which, as will be seen, will be privately financed, and the consultant level, which is financed by the State. It is this relationship which will now be examined further. The State has taken upon itself, through the National Health Service Acts, the National Assistance Acts, and the various National Insurance Acts, to provide a comprehensive scheme of medical and social care for those in our community who fall upon illness or other social misfortune. It is therefore reasonable that the State should interest itself, at some future date, in the health of the citizen whilst he is at work. When making provision for the national health it, at present, almost totally ignores this facet of national life. It is the determination of the specific nature of these provisions, which is the chief present difficulty preventing the organising of a national I.H.S. Parliament has the obvious power to legislate for such provisions to be completely supplied and controlled by the Governmental machine. These would be financed out of taxation of one form or another, Whilst this is a method worthy of consideration, it is suggested, that such direct interference by the State, in this one aspect of the life of <u>all</u> industry, would arouse a great deal of resentment from the managerial side. These people are extremely jealous of the independence of their activities. This hostility would prejudice the working of the whole service. A simpler, and less controversial method would mean enacting a Statute, which allowed detailed regulations to be made, stating the scale of health provisions to be made individually by the differing types and size of factory. There is, however, insufficient data available to allow any such scale of provisions to be estimated with accuracy. This was one of the main deficiencies discovered by the Dale Committee. The more traditional preliminary method of approach to these problems is what is needed at the moment. In this the State is content to allow private organisations to pioneer forms of social advance, sometimes assisting them with grants-in-aid. These pioneer ventures clarify the situation by establishing the basic principles needed, upon which to base the proposed reforms. They also educate public opinion about the necessity of carrying through the reforms on a national scale, and of backing them by legislative powers. The proposals for an I.H.S. for the nation as a whole are in just this embryonic state of advancement at the moment. Many large and enlightened employers already provide many, and sometimes more, of the services legitimately held to be within the scope of an I.H.S. These ventures have already served to define the functions of such a service. The medium and small factories have, as yet, been unable to discover a feasible economic method of imitating this work of the larger companies. The type of co-operative I.H.S. suggested here offers a means of achieving this. Such a project, despite previous ventures of this same type, is still too ill-defined, in many of its basic details, for any comprehensive legislative action yet to be taken. Should such an experimental project prove feasible, in a large and heavily industrialised area such as Tyneside, it is suggested that it should prove worthy of some State assistance. The co-operation of the R.H.B., in providing the clinical services for the consultative tier, would provide this assistance in a most appropriate manner. This arrangement would demonstrate whether co-operation between one arm of the N.H.S., and a privately controlled factory I.H.S., would be possible, and show what mutual advantages would spring from this. As will be seen the number of extra staff and facilities that would be needed would be very small indeed. In the main, a mere reorientation of the focus of activity of part of the existing R.H.B. services is all that would be needed. Co-operation of this type, between differing aspects of the nation's health services, would go a small way to breaking down the present artificial barriers which exist between them.

Integration such as this, would probably have the following results. A clinician, who suspected that a clinical problem had an occupational significance in terms of diagnosis, treatment or rehabilitation, would be able to obtain from the factory I.H.S. the information which he needed. The staff of the factory-level service, working in co-operation with the general practitioner, would be able to refer, for expert clinical opinion, any patient who they suspect of having an illness of occupational origin. The general practitioner would be able to obtain expert advice about both his patient's occupation and about his clinical condition, with reference to that occupation, from the I.H.S. and the hospital clinician. The patient, could in future, be treated by both G.P. and clincian as someone with a daily job of work to do, upon which he and his family depend, rather than as someone to whom being in work was only of minor importance. The clinician and the G.P. would have access to the factory, and thus to all the information which it could provide. The G.P. and the I.M.O. would have ready access to a new form of specialist advice, with knowledge and experience of occupational medicine. Both G.P. and clinician would have more ability to recommend specific forms of rehabilitation, which the factory level service would supervise.

b). Scientific Consultation.

The range of scientific skills and techniques, at the call of this part of the consultative tier, will need to be wide, if the full variety of environmental problems are to be tackled satisfactorily. Only a small amount of this total advice will be needed on a permanent basis, as only a fraction of it will be capable of being employed at any one time. Thus, as will be seen, the Occupational Hygiene Engineer will probably need to be the only full time member of this staff. He must, however, have the help of colleagues, from other disciplines, when the occasion arises.

Whilst there is a relatively simple method available for integrating consultant medical staff employed by the State, into an I.H.S., this becomes more difficult in the case of scientific staff. The State-employed clinicians are already at work in the medical field, albeit in a different one to that of the I.H.S. Integration of medical personnel becomes fairly simple under these circumstances. The State, however, does not at present employ any scientific staff, in a pre-existing organisation, which deals with Industrial Hygeine problems from this particular aspect. Thus a new and separate organisation would need to be created, or, these scientists would need to be employed within some existing but adapted body. The work, which these consultants will do is, in part, routine operational investigations. The techniques of this type of investigation have already been worked out and are instantly applicable. In other instances, the problem will be an original one, and new methods of investigation will have to be developed before it can be tackled. Thus the work is a mixture of original research and routine investigation, and as such it presents a separate set of organisational difficulties.

There would seem to be only three existing institutions which could be modified to serve this part of the consultant tier. Firstly, there is the local University, or College of Advanced Technology. The requisite range of scientists are employed by both of these institutions, but this solution is far from being a satisfactory one. The primary loyalties of the staffs of these places are towards the original problems of the academic disciplines which interest them. It may be, that there would prove to be sufficient representatives, of each of the sciences that contribute to Occupational Hygeine, sufficiently interested in its problems, to undertake this work. To be able to call upon them at the short notice some investigations may require, would mean that they undertook to suspend the work, they were at present engaged upon, until the present environmental problem was solved. This would lead to obvious difficulties and conflicts. Furthermore an uncertain proportion of the total work would be of a routine operational nature. Such work is at conflict with the basic principles of academic institutions, where original investigation is more encouraged. Finally, it is not every industrialised area that has the benefit of having a local University, although the increasing number of Colleges of Advanced Technology may make this a less serious qualification.

It would seem that this solution is not an adequate one to the difficulty under discussion. In the early stages of the development of an I.H.S., there may be only a small proportion of routine investigations, and sufficient original ones to make it appropriate for the local University or College to help with this work. As the number of investigations increased, the conflict of purpose between the I.H.S. and the academic institutions would increase, and eventually some alternative solution would have to be sought.

Secondly, there would appear to be a case for putting the scientific consultants under the control of the Factory Department of the Ministry of Labour and National [redacted] Service. It would seem appropriate that the Factory Inspectorate, which already has statutory responsibility for the enforcement of the legislative health provisions, should at least have some form of specialist and laboratory assistance. This would allow the Inspectorate to make objective measurements of environmental hazards, instead of the purely empirical assessments it uses at present. This, at first sight, is an attractive solution, especially as it has been forecast above, that some form of Government legislative action will be needed eventually in this field. The broader point of the relationship of the Factory Inspectorate to a future I.H.S. will be later discussed [redacted], but a few points will be anticipated here. Many of the environmental hazards that would fall to these specialists for investigation are not defined statutoily, and thus are strictly beyond the present scope of the Inspectorates' activity. The present-day infrequency of inspection of many plants (See Chapter 17), which is due to the shortage of staff, would mean that some hazards would go undetected and uninvestigated for a lengthy period, even if the Inspectorate broadened its term of reference. It is also anticipated that the majority of the situations requiring investigation would be initially discovered, and referred [redacted] for an opinion, by the members of the factory level of the I.H.S. As the factory level personnel will be indirectly employed by the member firms of the I.H.S., there may be a natural reticence to refer suspected hazards for further investigation, to a branch of a lawenforcement agency. Finally, it is submitted that it is unwise to associate too closely with an I.H.S., which requires the good will of all concerned in it if it is to be effective, an organisation, which has within its power, the enforcement of legal sanctions.

Thirdly, and most appropriately, it is suggested that an expansion of the present functions of the Public Health Laboratory Service (P.H.L.S.) would answer this problem. The P.H.L.S. is controlled by the Medical Research Council for the Minister of Health. Its present work is almost exclusively of a bacteriological nature, and it undertakes routine and original investigations, mostly of an operational nature. Administratively the P.H.L.S. is organised on a Regional and Area basis and, for this reason, it is considered particularly suitable as the existing framework into which this level of an I.H.S. can be integrated. As has already been stated, only an Occupational Hygiene Engineer will be needed on a full-time basis by each Region of an I.H.S. The other scientists, such as chemists and physicists, will only be needed to help with those few particular problems which involve their specialist knowledge. Thus it would seem that the more frequently needed engineer should be located in the smaller peripheral Area laboratories, whilst the, less needed, other scientists would be employed, in smaller numbers, in larger Regional laboratories. This latter arrangement would mean that it should be possible to arrange a steady flow of work for all of these specialists. As far as equipment is concerned, only that specialist equipment specifically needed by the Occupational Hygiene scientist would need to be added to the Regional and Area laboratories. Such instruments as air, and dust, samplers, are not within the present range of normal P.H.L.S. equipment, but much of the basic laboratory equipment is common to both these fields. This would, of course, appreciable reduce the cost of the whole venture.

The single objection to this form of integration lies in the fact that there is no tradition of work in the physical sciences in the P.H.L.S. The introduction of these non-biological scientists into an organisation, up until now solely concerned with applied biology of one form or another, may lead to relative overshadowing of the new type of work. On the other hand, there are other considerable advantages in addition to those already mentioned. The work of investigation would be carried out by a completely independent body and there should be less reluctance, on the part of the factory level personnel, to refer problems to it. The pattern of routine investigations, leavened with original ones, is in the present tradition of the P.H.L.S. It is just this admixture of types of work which is provided by an I.H.S. Finally, of course, this suggestion allows for co-operation between the State and the privately financed part of the I.H.S.

A final method for organising this part of the consultative work of the I.H.S., is for the participating firms to finance the work directly themselves. As will be seen, it is not considered that the factory level of the I.H.S. will appeal to the larger firms which are willing and able to supply this lower level of activity themselves. None, but the few enormous industrial units, would consider it worthwhile, however, to establish on a permanent basis a full time Occupational Hygiene Team who were engaged, exclusively, upon no other work. It may thus prove to be possible to interest, in this level of activity, a larger and much wealthier group of companies, than would be attracted to the factory level service alone.

In all these suggested solutions, it will be noticed, that the clinical and scientific arms of the consultative tier will still be working under the control of separate authorities. As much of the work will need the closest co-operation between these two groups of specialists, there is danger here of a lack of co-ordination. The ideal solution would be for the R.H.B. to provide <u>all</u> the consultative services, but it is difficult to see where the power for them to do this comes from at present. Furthermore, unless the laboratory of one of the larger general hospitals was expanded to undertake work of this nature, there would need to be established a completely new laboratory organisation. As hospitals are now employing pure scientists such as physicists on para-clinical duties, it may be that there is sufficient precedent here to allow the R.H.B. to employ at least a Hygiene Engineer. This still does not solve the problem of the less frequently employed chemist and physicist.

One imponderable dominating the whole problem of founding this part of an I.H.S. is where, in these days of scarcity, these scientists are to be found and trained. No British University, as yet, provides a formal training for any type of Occupational Hygienist; they have to be either trained whilst in service, and usually self-trained at that, or sent to the U.S.A. to obtain a training. As far as the scarcity of trained people is concerned, it is to be hoped that, as the initial number of these specialists required would be few, sufficient people with an adequate basic training would be attracted to this new field.

## The Factory or "Field" Level Industrial Health Service.

### Introduction.

The proposals, for the organisation of the consultative tier of the I.H.S. have been, almost exclusively, concerned with exploring methods of allowing the participation of the State in this part of the service. That this participation is within the bounds of the State's adopted responsibility for the citizens' health is without doubt. It is doubtful, on the other hand, if any I.H.S. would operate under the best conditions of managerial co-operation, if all levels of its activities were supplied and controlled by the Government. Particularly so if they were imposed hastily by means of legislation. For this reason, and others, it is thought fitting that this two tier structure, with the tiers provided by Government and private industry respectively, is a most appropriate method within our society of providing an I.H.S.

### Organisation.

The lower level of operation of the service, i.e. within the factories, would become the sole responsibility of industry. Private companies would be responsible for the provision of all the services and personnel of this tier, and they would bear the full financial burden of these. The large industrial concerns have sufficient financial resources to be able to supply these services individually. These large industrial units would provide sufficient work to ensure adequate use being made of the skilled personnel they would need to employ. This is, in fact, the situation existing today, in many of the larger companies in Great Britain. The smaller companies would have neither adequate financial resources for the task, or if they had, would be unable to supply sufficient work to make adequate use of their skilled staff. Thus, for these smaller units, some form of co-operative organisation suggests itself in the light of achieving the desired end in the best way. It would appear that today many trained nurses employed in industry, are to a greater, or lesser degree, under-employed (See Chapter 17 ). The numbers of people they have to care for ~~being~~ are too low to provide sufficient continuity of work. On the other hand there are many factories which are not served by any skilled health staff at all, and have a definite need for their services. Often these two types of factory are geographically adjacent. Some means of ending this paradox and, at the same time, of extending the provision of services, to that large group of concerns as yet without regular supervision, is needed. The place of legislative action at the present time, together with the lack of adequate knowledge upon which to base this, has already been considered. The present day answer to this problem is to seek the voluntary co-operation of the smaller industrial concerns. It is recognised that a large number of the small and medium sized companies will not wish to co-operate in such a venture. If this I.H.S. is looked upon as another example of the traditional method of stimulating government action by private example, then these non-participating companies can be dealt with by legislation at a later date. If such a co-operative I.H.S. for these smaller firms proves to be the optimum method of providing for the health of the worker at work, then the legislation can be designed accordingly. These reticent employers will be compelled to comply with it, and it will embody a detailed code of good practice.

At the present juncture the task, then, is to design an I.H.S. which will provide, for the medium sized and small factory, all those services which have been found to be within the sphere of activity of such organisation. The design should allow of extension later, by means of legislation, to all those firms who do not co-operate in it voluntarily.

The functions of an I.H.S. were discussed at length in Chapter 19, and will not be considered further here. The form of this level of the service is the point to be followed now. There are several alternative ways of organising the provision of health facilities for a group of factories. One way is to provide common facilities for all factories engaged upon a common type of industrial activity. This would allow a common set of environmental problems to be viewed at the same time, but would mean that the work would probably be spread out over a wide and inconvenient geographic area. On the other hand, environmental problems are often related to factors other than the type of manufacturing activity. Age of plant and buildings, numbers of employees, financialresources and so on, have each their own influence upon the healthiness of a workplace. It would seem prima faciae that this is not a convenient method of organising the work. There is some reson for saying that factory size, as judged by the number of employees, should be the basis of organisation of the I.H.S., and in a way this is precisely the type of organisation being discussed. Certainly the large number of very small factories, which employ less than 11 people but such a small proportion of the total working population, presents peculiar difficulties of organisation. It is thought that to concentrate a special organisation upon such a group and to supply yet another organisation for the larger concerns would be impracticable. The costs of providing an I.H.S. steadily increase with the decreasing size of the factory (Chapter 18 ), and to concentrate the smallest factories in a special service, providing identical facilities, would make this part of the I.H.S. very expensive. It is, of course, the smallest firms who are less able to afford the cost of a privately financed I.H.S. Therefore, the functions of the service would either have to be contracted for this size-group of factories, or some means of reducing the average cost of them must be found. This reduction would follow if the total cost was spread amongst other larger firms who were better able to bear it.

It would seem as a result of these considerations that the most feasible way of organising the factory work of the I.H.S. is on a geographic basis. The size of a convenient geographic unit must depend upon a number of factors, some of which will only become clearer after operations have begun. There are some factors which can be considered, in outline at least, before this point is reached. Thus, the unit must not be so large that a lot of professional time is wasted in travelling, or that emergency attention is grossly delayed. On the other hand, the unit must be large enoughto contain a sufficient number of factories to make it financially self-sufficient. Dense concentrations of factories in one locality will allow a more economic running than in less concentrated areas. The central legislation must allow of some device to balance this situation. Some areas may prove to have such a large proportion of non-co-operating firms, that it is not possible to begin operations in that locality within the voluntary type of organisation. The main unknown is the scale of provision of staff and equipment, in relation to the numbers of people, and the size and type of factories covered. A large number of small establishments will probably need to have more time and facilities devoted to them, than a smaller number of bigger concerns, which have the same total numbers of employees. Similarly, a small, heavy-industrial plant may easily require more skilled attention than a place employing thrice as many people, but engaged upon some highly automatic process, such as biscuit manufacture. Therefore, before any large scale geographic units are founded, it appears vital that a small pilot I.H.S. be set up in a small geographic area, such as a section of Tyneside, which should contain a range of differing types and sizes of factories. Such a pilot scheme would allow a less empirical approach to be made to the scale of staffing and equipment needed for the larger scheme. Even so, really detailed material of this nature will only be obtained from the larger scheme itself. This should cover an area such as Tyneside; it will contain several of these basic geographic units, and will serve as a working demonstration of the need for a nation wide I.H.S.

These basic geographic units must each be clothed with individual and corporate identities for legal reasons, if for no other. As has been seen, both the Slough and Harlow Industrial Health Services have each adopted the form of a private limited liability company. This device seems a sound one. The liability of each of the shareholders is nominal, and each industrial concern participating in the work of the I.H.S. becomes the holder of a single nominal share. This arrangement gives each geographic unit of the I.H.S. a legal personality, and allows it to freely engage as such, in activities like the employment of staff, the ownership of property, and the buying and selling of goods. It also clothes the unit with legal rights and responsibilities. From amongst the shareholders of this company would be elected the Council of Management, who would be responsible for the executive control of the unit. This Council would obviously have to have respresentatives of the participating concerns for the majority of its' members. There would, however, need to be a place upon this body for representatives of organisations which are not constituent shareholders of the parent company. Thus Trade Union leaders would need to be adequately represented, if the confidence of the work-people, in the integrity of the aims of the I.H.S., was to be obtained. There would also need to be represantatives of local General Practitioners, the Regional Hospital Board, and the Local Authorities of the vicinity. The precise total number of members of this council would vary from unit to unit according to its size. In principle the total should be kept small enough to allow speed and precision of decision, but it should be sufficiently large to allow a minority representation of those interests, who, whilst affected by the I.H.S., are not representatives of participating firms. The proportionate representation, to give an altered balance of interests within it, may well be changed if and when legislative action results.

It may be necessary for sub-committees of this Council to be appointed to deal with separate matters, such as finance. This subject would probably be best discussed in the initial voluntary schemes, by a committee consisting only of representatives of the member firms. The whole financial policy and control should be in the hands of this committee, subject of course to the over-riding control of the Council. There may also be a place for an advisory sub-committee, somewhat on the lines of the Occupational Health Advisory Committees suggested by the British Medical Association. Such committees represent in equal numbers both sides of industry and the medical and allied professions. Whilst members of the Council would sit on this advisory committee as representatives of their separate interests, they would not be in a majority here. This committee would be a sounding board for the Council for the grievances and suggestions of any of the represented parties.

It could also be used as a source of advice upon future executive action which was under consideration. Although the minority members of the Council itself could perform part of these functions, it is thought that a demonstrably independent source of advice would inspire confidence in all members of industry, and the general public, about the activities of the I.H.S.

As the number of these basic geographic units grows there may arise a good case for some form of amalgamation or rationalisation of them. It may prove more convenient, for example, for several functional units to be under the control of a single Council of Management and one nominal corporation. This would have some advantages economically, as some of the administrative overhead costs would be reduced, and some centralisation of the services and equipment would result. However, it must be remembered that such a unit of the I.H.S. will serve a wide range of types and sizes of industry and a considerable number of factories. If the administrative unit becomes too large, its Council will begin to lose contact with most of the numerous concerns which go to form it. Remoteness and lack of sensitivity will follow, and will cause a great deal of resentment and suspicion. These could themselves so hamper the effective running of the functional part of the services as to negate any gains that may have accrued. A course has got to be steered between these two extremes.

Routine Operation.

The work to be carried out within this geographic unit of the field level of the I.H.S. must be organised, in such a way, as to allow the maximum use to be made of the trained staff. As will be seen, the service will employ trained nurses to carry out the bulk of the day-to-day routine clinical+preventive work. Each nurse will be made responsible for one or more factories, depending upon their size and the work load they will produce. Within these establishments she will perform those functions of the service for which her training makes her most suitable. If she is to care for more than one factory, and her charges are scattered, she will need to be provided with some means of transport. Obviously the work of the nurses will be allotted so that their travelling is reduced to a mimimum. If there are a large number of smaller places, to be covered, and this will probably be the case, she will still, however, have a fair distance to travel. Mobility is therefore essential if she is to attend rapidly to emergencies, occurring in her sub-area. It is proposed that the majority of facilities for investigation and treatment that the nurse will require will, as far as possible, be permanently located in all participating factories.

Such facilities will be kept as simple and as few as sound practice will allow. The amount of equipment that she will thus need to transport, load and pack, each time she moves from one factory to another, will be reduced to a minimum. Basically, if she has available a clean, private room with adequate hot and cold running water, washing and toilet facilities, and disposal for waste, much else of the equipment she needs can be carried in a bag, and two small sterile drums. In order to work with such portable equipment she must, of course, have a convenient central base at which she can replenish and service it. This point will be pursued later. The type of transport provided must be reliable, economic, and adequate for the purpose.

The daily routine of such a nurse will consist of a daily visit to each of these factories in her sub-area which require her clinical services. This will probably mean that she will visit the larger factories daily, and the smaller ones as required. The rest of her time, which should be at least half of the total, should be devoted to other, mostly preventive, matters. These will range from routine environmental inspections, home visiting, and first aid training, to the compilation of statistics, the keeping of records, and Health Education and Accident Prevention.

Each of the sub-areas in which a nurse operates, will need the services of an Industrial Medical Officer (I.M.O.). Taking the basic I.H.S. unit, made up of several sub-units served by nurses, the problem of emergency medical cover for the nurses has to be considered in this context. It would appear essential that the I.H.S. shall readily have available for its nurses, medical support for cases of serious emergency. If part-time I.M.O.'s, mostly G.P.'s, are employed an administrative difficulty arises. Either one of these G.P.'s must devote the whole of his time on one day to giving this cover, and undertake to remain constantly and readily available, or a full time I.M.O. must be employed for this purpose by each I.H.S. unit. The point being, of course, that G.P.'s when out on their "rounds", are extremely difficult to locate and contact, and even when found, are sometimes engaged upon matters which must be given priority. In a compact area with several participating G.P.'s all in partnerships, such as Harlow I.H.S., this problem is easily solved. The part-time I.M.O., during his day on emergency call, simply keeps in regular personal telephonic contact with the service headquarters. In an area such as Tyneside where a regular flow of emergencies may be expected, owing to the local concentration of heavy industry, the doctor would be required much more quickly and frequently than this arrangement allows. It is important that the users of any I.H.S., employers and employees, should feel confidence in the casualty treatment aspect of it. Regular failure by the service to provide prompt and adequate treatment of a seriously injured or ill person, would result in a serious loss of this confidence. Often this type of emergency requires the presence of a doctor, if not in objective clinical terms, at least in terms of public expectancy. As a result, it would appear that a full time I.M.O. will need to be employed by each geographic unit of the I.H.S. On page 280, it will be argued, however, that the majority of non-emergency medical staff should be provided by local G.P.'s. It should be unnecessary to confine the duties of the full-time I.M.O. to emergency casualty duties, there would rarely be enough of these to keep him fully occupied. It is suggested that these few full-time posts should be used as training posts, of the registrar type, for younger men intending to make Industrial Health a career. As such he should be allowed to participate in the full range of work done by all I.M.O.'s, full- or part-time. He should be given supervision and instruction by a more senior colleague. Whether this should be the consultant in the subject, who is employed by the R.H.B., or a senior man also employed full time by this tier of the service, will be followed further on page 280 .

The detailed duties of the I.M.O. have been mentioned in Chapter 19. The work will be organised on a geographic basis similar to that of the nurses, and regular sessions will be allotted to each I.M.O. at specific factories.

It has already been mentioned that all the professional personnel, but particularly the nurses, would need to work from some central headquarters of the service. In a densely industrialised area, such a building would serve a large number of staff, and cover a large number of factories. For smaller areas fairly modest quarters would be sufficient. The function of this building is not to supplement either the G.P.'s surgery, or the hospital outpatient and casualty departments. It is to serve as a base for equipment and personnel who, as it has been shown, will perform the majority of their duties within the factories. It should also serve as a centre of communication for the service. With the working personnel "on the district", most of the time, good communications are vital, if smooth running is to be possible. It will prove necessary for some routine work to be carried out in this headquarters. There will be a number of firms who are members of the service who will provide only the most rudimentary medical facilities within their factories. These will be adequate for the daily treatment of most minor ailments, but will be quite inadequate for such procedures as thorough clinical examination on engagement, or return to work after a complicated illness. It may also prove necessary for the consultants to examine a person close to his place of employment before that place is visited.

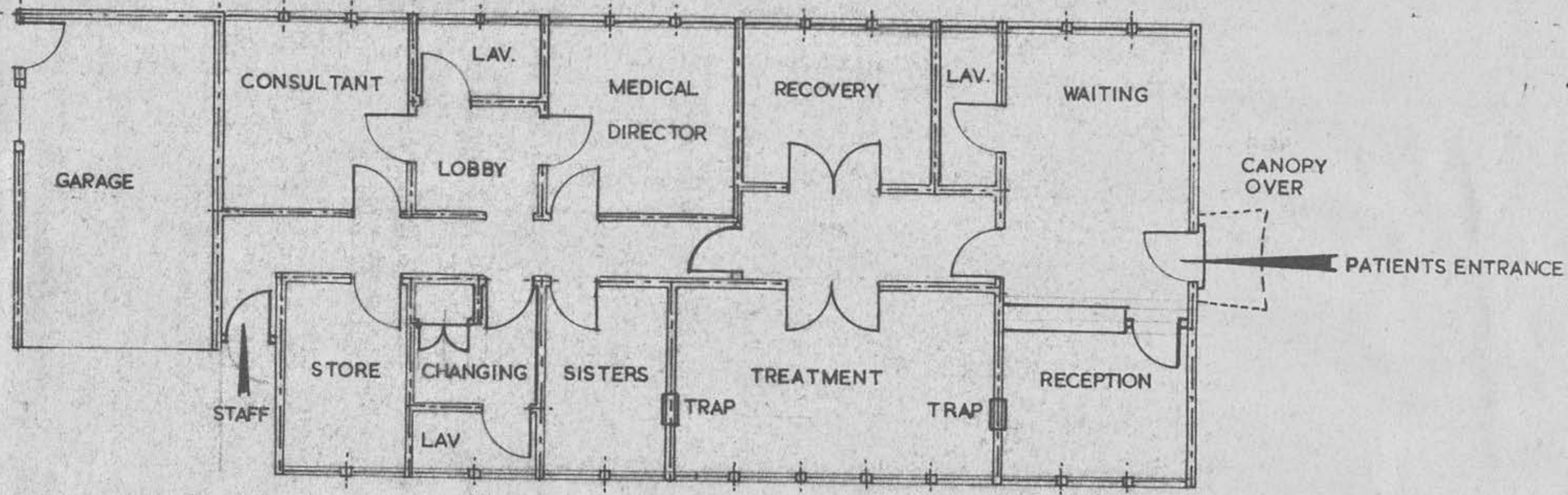
Thus some provision must be made either in this central building, or elsewhere, for the carrying out of these procedures. Finally, in the more densely industrialised areas the centre may be so close to many of the member firms that it would prove more convenient and economical for all the daily treatment work to be done in this centre, rather than in the works. None of this excludes the possibility of using the expanded Medical Department of a member firm for these purposes. Such a possibility is considered to be more likely under a statutory scheme than a voluntary one.

A suggested plan for such a building of this type is shown over page . This is largely self-explanatory. The reception area also serves as the communications centre of the service. The treatment and recovery rooms are meant to be largely multi-purpose rooms, and the latter can be used for alternative purposes, such as for simple physiotherapeutic procedures. The consulting rooms with adjoining lobby are meant to be used either separately, or as a single examination suite, to allow rapid turnover of patients during routine physical examinations. The rooms in this instance are used alternatively as dressing and examination rooms. The separate changing room, on the opposite side of the building, is meant exclusively for the nursing staff, who, as they spend most of their time outside in all weathers, will be much in need of this convenience.

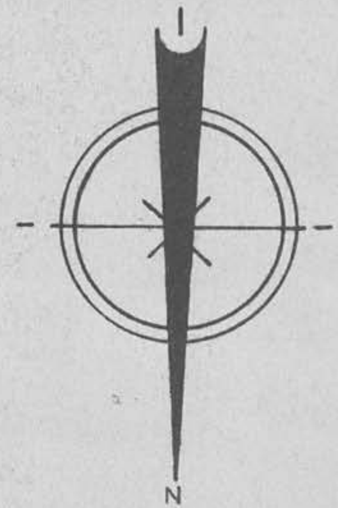
This building is designed to be easy to run, cheap to erect, and readily capable of expansion. It also serves as a basic design for such a centre, and can be modified within the basic concept, to meet varying conditions and amounts of work. It is thought, however, that should financial conditions allow, and particularly if much treatment work has to be done because of the proximity of many factories, treatment rooms should be split into separate "clean" and "dirty" rooms. (The essential equipment of the treatment room such as sinks, autoclave etc. are not shown in the plan).

Medical Director.

The next point requiring attention is the organisation of the day-to-day administrative control of the service. Under the executive control of the Council of Management there will need to be an administrative officer, charged with the responsibility of giving practical effect to their decisions. It is considered that a medically qualified person is best suited for this post, at least until the principles of operation of an I.H.S. become clarified. When it is possible to be more definite about the methods and minutiae of running such a service, it may be more appropriate for a skilled and trained lay administrator to take over the work. It is doubted if any of the G.P.'s to be employed would havefurther time to spare, or the necessary training, to fill this




SCALE:- 1/8" REP. 12"



post. The full-time I.M.O. mentioned above, would often be a junior person, as his work would only attract someone of this type. As such he would hardly be fitted to this task. It would seem that a senior person experienced in the day-to-day workings of a factory Health Service is needed to serve as the Medical Director. The Consultant in Industrial Health may suit the post, but his training will have been quite different to that of the man needed here. Furthermore, he is appointed by the R.H.B. to cover a much wider geographic area than that of a single unit of the field level I.H.S. This means there would need to be several of these highly trained specialists, and some other alternative is needed. Therefore, it would appear that a separate post of full-time Medical Director is needed. There are two ways in which such a man could be employed. Firstly, he could serve, exclusively, one of the basic geographic units of the field level I.H.S. A small part of his time being devoted to administration and the remainder to the ordinary duties of a full-time I.M.O. As such he could, of course, be responsible for the emergency casualty coverage of the service. Should this latter type of work be at all heavy, it is thought that such a post would be unattractive to the senior type of doctor who is needed. It would, of course, be practicable to employ two full time I.M.O.'s at this level, but unless the total amount of work needing attention was very large, this would lead to a corresponding reduction in the general practitioner representation. This is not considered to be desirable for this type of Service. Where the region is large enough to support several units of the factory level service, this doctor, on the other hand, could serve as the Medical Director to them all. There would be several advantages to such an arrangement. The doctor would have enough work of sufficient responsibility to attract the senior type of man desired. His joint appointment to several different areas would ensure some continuity of standards and performance throughout the region. It would be possible for the Medical Director to act in some instances as a Consultant in his own right. He would not, of course, have clinical responsibilities or facilities in a hospital, and so the scope of his work in this respect would be limited. It is thought, however, that a man of this type, with wide experience of the every day problems of running a factory health service, would bring to this service the benfit of a different and valuable range of experience, than would the hospital based consultant.

## II. Staffing of an I.H.S.

### Consultative Tier.

#### a). Consultant in Occupational Medicine.

This clinician must be a person with a sound and wide grounding in clinical methods and techniques. Furthermore, he must be essentially a person whose outlook is orientated towards the environmental causation of disease. He must be widely conversant with the industrial scene and the diagnosis, treatment and prevention of occupationally induced illness. It is admitted that such men are rarely found in contemporary medicine in Great Britain. Nevertheless, all these qualities would appear to be essential if he is to take his proper place as the leading clinical member of this part of the I.H.S. As such his advice will be most frequently sought, and he will need to devote all his professional time to the subject. It would be necessary for his position to be that of Regional Consultant in Occupational Medicine to the R.H.B. (Similar to the present position of Regional Consultants in Psychiatry.) As such he would have control of a small number of his own hospital beds in a large general hospital, or in the local teaching hospital. In this latter situation he would, of course, need to have some dual appointment with the local United Hospitals. The major part of his work would be taken up with the investigation of the subtler health problems discovered by the factory tier of the service. As a result, he would naturally devote a great deal of his time to investigations within the factories where these occur. There are, of course, in this field few purely clinical problems, and these investigations will often involve some scientific measurement of the environmental conditions that may have produced the clinical condition. Many of these investigations must be carried out with the aid of skills and knowledge possessed only by other specialists, and they thus involve the work of a team of experts. This <u>OCCUPATIONAL HYGIENE TEAM</u> is an essential part of this tier. The exact composition of the Teams at any one time is determined by the nature of the problem under investigation at that time. The place of the consultant physician in it is discussed, when the work of the team is considered further on page 276.

#### b). Other Specialist Physicians.

The rapid development of modern medical knowledge may easily result in the Consultant in Occupational Medicine being confronted with facets of a particular problem, for which even his specialist knowledge is inadequate. Under these circumstances, it will be necessary for him to have available the advice of other clinical specialists. The precise nature of these specialities, and amount of time the consultants will need to devote to industrial problems, will need further investigation. Again it would seem that only a functioning pilot service could provide this information. It may well be that those patients who need hospital admission could receive this extra attention in the usual professional manner. Where the patient does not need hospital admission, and the extra consultation necessitates a lengthy factory visit, it is doubtful if it could be obtained without some formal arrangement being entered upon. The advice, on a limited but formal basis, of a cardiologist, haematologist, and chest physician may well eventually be needed.

c). Dermatologist.

The same criteria, as to experience, training, and orientation, apply to this consultant, as well as to the Occupational Medicine Consultant. A knowledge of, and interest in the basic physical sciences, particularly chemistry, would seem to be more essential to the competent occupational dermatologist than to any of the other clinical consultants.

d). Orthopaedic Surgeon.

The regular advice of this clinician will be most essential. As well as being a sound surgeon, this member of the consultant team must have an interest in the prevention of traumatic injuries, and in the rehabilitation of the traumatically injured. His advice will be needed regularly and frequently, particularly if there is a local concentration of the highly traumatic industries, such as shipbuilding and coal mining.

If it is possible, and necessary, to establish a central rehabilitation clinic for the more difficult problems of rehabilitation, this consultant should, ideally have the control of it.

e). Ophthalmologist.

Again, depending upon the nature of local industry, the amount of time that this consultant will need to devote to industrial work will vary. As well as traumatic problems, there is an increasing demand, from modern industry, for an accurate assessment of personal visual capacity, before and during employment. If this trend continues, the volume of ophthalmological work referred from the factory level of the I.H.S. may be considerable. He must, of course, be able and willing to participate in field investigations involving his speciality.

f). Other Clinical Consultants.

Depending upon the volume, and nature, of the work unearthed by the factory level, which in turn will depend upon the pattern of local industry, the need for other specialist advice will vary. The above named specialists would need to contribute to the consultative tier, in varying degrees, no matter the pattern of industry in the area of the I.H.S. With varying localities it may be necessary to employ other specialist sources of advice. Thus an area, with a high number of women employed in industry, may produce sufficient gynaecological problems of industrial causation or importance, to allow the employment of a specialist gynaecologist. Within certain types of industry, and with extending scope, there may be adequate work for a psychiatrist.

Conclusions.

It is not suggested that the work that these consultants would do, whilst employed by the I.H.S., is today being overlooked. Nor is it going by default because of the present non-existence of an I.H.S. It is suggested however that, at present, the adequate care of patients is being handicapped in two ways. Firstly - when a hospital-centred clinician suspects that a problem referred to him has a content which is associated with the patient's employment, he is unable to obtain, either first or second hand, any reliable relevant information to help him further. It would be comparatively simple to obtain this lacking data if the administrative machinery outlined above were available. Secondly - to further the treatment and rehabilitation of the ill person some consideration should be given to his every day life. This is rarely so at the moment. The administrative machinery for the assessment of the person's working environment by the specialist himself, or by a skilled colleague or auxiliary is almost absent. It is suggested that the I.H.S. would allow this information to be obtained, and action taken upon it. At present much of the clinical work treats the patient as a person living in vacuo. Recently increasing attention has been given by hospital clinicians to a patient's domestic circumstances, but still almost no attention is paid to his occupational situation. The I.H.S. would allow this to happen.

Furthermore it is not suggested that ALL consultants employed by a R.H.B., or by a teaching hospital, should be employed part-time in industry. It would probably be sufficient for one member of the specialities named to be so employed in a Region. His fellow specialists in that field of Medicine, would then be aware that should an occupationally biased problem be referred to them, that there was available someone who could speak with an intimate knowledge of the local industrial situation.

Ancillary Personnel.

The remaining and greater part of the professional time of the consultants will continue to be centred in the hospitals of the local R.H.B. If, as suggested, for that part of their time which they serve the I.H.S., they still remain servants of the R.H.B., then the ancillary staff of the hospitals, where they work, will continue to serve them there as before. With the reorientation of the work of the consultants, there will follow a reorientation of the work of the ancillary staffs, such as occupational therapists, physiotherapists, almoners, and so on. There should be no need to enlarge their numbers more than slightly. If a central rehabilitation centre proves, through the working of the pilot scheme, to be necessary, there will be a need to engage certain specialist ancillary staff, extra to those already serving in the hospitals. Thus there will be a need for specially trained social workers, remedial gymnasts, workshop staff, such as foremen and instructors. There is probably a place for an educational psychologist also.

Scientific Consultants.

The evaluation of a wide range of environmental hazards requires, as stated, contributions from several independent scientific and technological disciplines. The measurement and control of such hazards can rarely be accomplished by a single person practicing only one of these branches of knowledge. For example, the evaluation of some dust hazards require contributions from a physicist, and a chemist, and probably a geologist, whilst ~~it~~ their control will need the services of an engineer. Thus it is often necessary, for the solution of a problem, to employ a team of specialists, who each bring one or more branches of knowledge to bear upon it. If the existence of a particular hazard is first evidenced by the occurrence of an illness, in one of the people exposed to it, then the cooperation of the particular specialist clinician, who has the responsibility for the patient, is necessary also. Under these circumstances, most of the subtler environmental problems will need the co-operative services of a group of specialists, i.e. an Occupational Hygiene Team, for their control. The composition of the team will vary with the nature of the problem under investigation. In the simpler instances, an engineer and the I.M.O. of the plant concerned will be able to handle the problem. In others a much wider range of skills may be needed. Thus with a suspected radiation hazard, it may be necessary to employ a chemist, physicist, engineer, and one or mœe specialist clinicians, who all bring their particular skills to the consideration of it. It is, of course, essential that all of these members of the team be adequately trained in the application of their particular knowledge to the problems of environmental control.

It has been found worthwhile in the U.S.A. to provide specialist academic training in this field for science graduates. It would seem that the evaluation and control of the majority of hazards is more readily taught to engineering graduates, than to others. Their basic training more readily suits them to the acquirement of the neccessary techniques. It would seem, therefore, that the main member of the Occupational Hygiene team is the trained Health Engineer. Most of the problems which need to be referred to the team for solution would neccessitate the inclusion of this member. Many of the simpler problems, which are recognised by the members of the field level of the I.H.S., could be solved with his advice alone. Despite his ubiquity he occasionally would need to have the co-operation of a chemist and a physicist, but their services would not be needed on the same scale as that of the engineer. Supporting this team there would need to be adequate laboratory facilities and technicians. All these points have been adequately covered already.

The question of the leadership of this diverse team must be discussed. In any team there must be, at least, an administrative head to take decisions about the sequence of operations, and make the administrative arrangements for the work. In a situation such as this, the leader may be required to arbitrate upon the conflicting opinions, that will arise when diverse scientific and medical disciplines are brought to bear upon a single problem. The question of leadership thus becomes an important issue. It is suggested that whilst there can be no concrete rules laid down about this, the following suggestions may be of guidance. It usually happens when a problem of environmental control is intially discussed, that one of the contributing specialists finds his subject more deeply involved than the others. It may be that the clinician is the first to become aware of the existence of a hazard, due to a series of cases being referred to him. On the other hand, the management of the plant may suspect that a new process is hazardous without their being any clinical incidents to support this. It would seem that that specialist, whose subject is the most deeply concerned, should be elected, by common consent, to lead the team for the solution <u>of this problem only</u>. When another and different problem arises, then the question of leadership is discussed once more. This would seem to be an objective approach to the difficulty.

## <u>The Factory Level I.H.S.</u>

### a) <u>Nursing Staff.</u>

The most important members of this part of the I.H.S. are the nurses. It is the nurse who is the primary diagnostic and therapeutic agent at this level of operations. Furthermore, she is the primary source of intelligence about factory environment. Her importance stems from the fact that she is the only worker in continual contact with the focus of an I.H.S., namely the worker at his work place. For this reason it is essential to the continued efficiency of the service and to its standard of performance, that she be a reliable agent. He, or she, must of course be adequately trained in the basic essentials of good nursing. The possession of a formal training in Occupational Health would appear to be a most desirable pre-requisite. There is no doubt that those nurses who have had the benefit of such extra training have a broader approach to the subject, and can give a wider and more reliable range of services. There is, however, no substitute for a sound basic training, wide experience of nursing in general, an acute appreciation of the limitations of nursing, and a sound and balanced outlook upon all problems with which she is faced. In all her duties she should have the benefit of readily available medical advice, from the I.M.O.'s who staff this level of the I.H.S.

The duties of the Occupational Health Nurse are limited by the same ethical considerations which have been discussed above (Chapter 19). Whilst the therapeutic side of her work is thus limited, it is in some respects, of a more independent nature than that of the other nurses. It is not possible for a doctor to see every minor ailment that is brought to the I.H.S. for treatment. Those trivial complaints, which do not keep a patient off work by causing him to visit or call his doctor, are often brought to the nurse, who attends his workplace, for her opinion. The patient's assessment of what is a worthwhile ailment needing further attention is notoriously unreliable. The nurse working in a factory, then, is the first skilled medical person who comes into contact with many complaints, and upon her is placed the responsibility of concurring with the patient's opinion of them, or otherwise. For her to refer all these complaints to a doctor is merely to negate her position. Yet she must realise her own limitations, and be prepared to ask for a further opinion, be there the slightest doubt in her own mind about the significance of the complaint. As a corollary of this there must, of course, be readily accessible medical advice within the I.H.S. available to her. Having ascertained the triviality of the complaint she must then be willing to prescribe, and give, the appropriate simple treatment. In all these situations she will require an objectivity, knowledge and decision not demanded of many of her profession. It is thus vital to sound functioning, that all nurses employed by an I.H.S., should be precisely aware of the bounds of their responsibilities. This can be achieved by several means. Proper selection of personnel, adequate instruction in the ethics of her professional position, clarity and precision in the instructions given to her about her work, and regular and frequent medical supervision, all help to achieve this.

Whilst the more obvious part of a nurse's work from the patient's view point, lies in the diagnostic and curative field, the most important part should be of a preventive nature. Most of the clinical occupational health measures discussed above, are within the sole province of the I.M.O. (Chapter 19). The nurse is, nevertheless, responsible for assisting him with the personal health supervision of the groups mentioned on pages 247-50. There are other duties of a quasi-clinical nature which she can legitimately be expected to perform. She should be the first member of this level of the service to see people taken ill at work, before they are sent either to hospital or home. Similarly, she should be the first person to see a patient returning to work after a period of sickness absence. In both these matters she acts as a diagnostic screen for the I.M.O. and so allows a dilution of medical man-power. The patient does not suffer thereby, as presumably, his own medical advisor considers him fit for work on general grounds. The nurse applies her knowledge of the specific work situation, about which the domicilary doctor can have only the sketchiest knowledge, and makes appropriate recommendations, which may, of course, include referral to the I.M.O.

Predominantly the nurses' duties should consist in general supervision of the factory environment, and of the people who work in it. To do this adequately she is not required to be a minature version of all types of specialist, employed by the consultant tier, rolled into one. Her quality of service is of a different nature. In essence she must acquire a thorough knowledge of the processes of the plant(s) for which she is responsible, and of the people who work in them. Any change from her empirical assessment of their "normality" in either of these, should be the signal for her to report the observed deviation to the I.M.O. She should, of course, be sufficiently trained and experienced to be able to give a descriptive account of the deviation she observes, and a rough assessment of its significance. In essence the great value of the Occupational Health Nurse lies in having, through her, a trained biological observer continually available in the factory. Her limited responsibilities, nevertheless, allow her to observe and report for more expert assessment, significant deviations from health in the employees, and from safety in the working environment. To perform this function adequately the nurse must be allowed adequate time for her work. The precise definition of her day-to-day duties can only be given in relation to the size, nature and geographical distribution of the factories for which she is responsible.

b). Medical Staff.

The limitations placed upon the clinical duties of doctors working in industry have already been explored in some detail and will not be discussed further. The main point for consideration here is whether an I.H.S. should be staffed:-

i) by doctors exclusively in the employ of the service, or

ii) whether the duties are best performed, upon a part-time basis, by doctors already resident within the locality and with primary professional committments in other fields - particularly in general practice.

The advantages and disadvantages of each type of I.M.O. will be discussed separtely.

i) The full-time I.M.O.

This doctor has presumably decided to embark upon a career in Industrial Health, and looks to it for an adequate and progressive career. It is presumed that he has obtained, or is willing to obtain, adequate academic and practical training in this field. This doctor will look for work which will provide him with a steady number of interesting health problems, and will allow him to exercise the skills and knowledge he has acquired. Together these must afford him satisfaction in his chosen career. The intrusion of too great an amount of repetitive routine work into his daily professional life will only serve to frustrate him and blunt his enthusiasm. Furthermore a man who has chosen Occupational Health as a life-long career will, naturally, expect in his earlier years, to receive progressive advancement in remuneration and status. He is not expected to have the detailed and specialist knowledge of the clinical and scientific consultants of the I.H.S. Because of his background he may well be expected, however, to carry out closer, and deeper, investigation of some problems, than would a doctor with less interest and training in this field.

An I.H.S., of the type outlined, may find a place for a limited number of these men who could be offered a sufficient range of rewarding professional work, together with a steady advancement in status and remuneration. The very nature of the factories most likely to participate in such a service restrict such opportunities for the full time I.M.O. The small and medium sized factories will probably produce a relatively large amount of time-consuming routine personal and environmental supervisory work. The administrative structure of this Service resembles a very flat pyramid with a wide base, little height, and only a few intermediate positions of responsibility. Under these circumstances there would be a tendency for the I.H.S. to attract only the junior full-time I.M.O.'s, who after a short time spent in gaining valuable and concentrated, but limited experience, would seek more interesting and senior posts elsewhere. There would thus be a fairly high turnover of the I.M.O.'s of the factory level of the Service. This has been found to have some considerable disadvantages in the Slough I.H.S, the only place where an experiment of this type has been tried on a sizeable scale for any length of time. The main difficulty lies in environmental supervision. A large number of small plants, in this type of service, must be assigned to each I.M.O, if an uneconomically large number of doctors is not to be employed. Whilst much of the routine inspection is carried out by nurses, the I.M.O. is still required to visit each factory regularly. He must have a working knowledge of the environment of each place, if he is to give efficient supervision and advice to these nurses. Thus upon joining the service he must spend a considerable amount of time acquiring this knowledge. Owing to the range of this part of his work, it takes him a further considerable time before all his knowledge has been assimilated and assessed. By the time this maturity has been attained, it is often found that the young doctor has gained sufficient experience of the other branches of the work to wish to move on to a more senior post. Just about the time he is becoming really proficient, therefore, as an environmental advisor, he leaves and the cycle begins again. Furthermore, during this period of his environmental and clinicalresponsibilities have been so numerous and varied, that he has gained a lot of superficial knowledge, but has not had time to acquire any profound learning. The post, there fore, has had no real value as a training appointment either. This whole problem stems from the administrative structure of this type of I.H.S. which, of course, is determined by the financial resources available to it. Nevertheless it is not disputed that the relatively junior and inexperienced full-time I.M.O. often brings to his job knowledge and enthusiasm, that are often lacking in those who work only part-time in this field.

ii). Part-time I.M.O.

The position of the doctor whose main professional responsibility lies in General Practice is considered first.

Once a doctor becomes established as a partner in ageneral practice he tends to remain in that locality, and that practice, for the rest of his professional life. His main interests are in the diagnosis and treatment of illness, and his work, and usually his interests, are solely confined to this clinical sphere. His approach to Industrial

Health, as a result, is greatly coloured by this orientation, and he tends to underestimate, and often ignore, the more important preventive aspect of medical work in industry. In this respect he is at a considerable disadvantage when compared with the full-time I.M.O., whose interests and training emphasize this latter aspect of the work in preference to the clinical side of it. Usually however, a doctor enters part-time industrial work because he has an interest in the work, and because it broadens his horizons which he often considers are somewhat limited. It must not be ignored that the extra remuneration he receives for this work is, in these days of almost non-existent private patients, an added attraction. He brings to the work, in most instances, a knowledge of domiciliary conditions, and the more senior men also bring a shrewd judgement of persons and situations, with them. As he spends only a fractional part of his time in the work, he does not tend to become bored by routine personnel and environmental inspections. He keeps his freshness and alertness for this type of work, more than would someone who was overburdened with it in a full time job. An important organisational factor against the employment of part-time doctors is their extra cost when engaged on a sessional basis, as compared with the full time salaried men. The latter is available for the whole of his professional time, and a continuous schedule of duties, with less waste of working time, can be arranged for him.

Overall, the advantages in favour of a part time I.M.O. are his constancy of residence in the area, which cuts down the turnover of staff, together with his ability to attend effectively to a steady amount of routine work. Against him is his bias towards curative medicine, his lack of formal instruction and experience, particularly in environmental control, and his greater expense to the service.

In assessing the preference for either of these types of I.M.O. one vital piece of information is needed. What amount of medical time needs to be devoted by an I.H.S. to any one unit of either population or industry? This is unknown, and an accurate estimate of it can only be obtained from a period of experience with a pilot I.H.S. If this is to produce the information required it must cover an adequate range of size and type of factories. The existing experiment in Harlow is atypical in that it operates with G.P.'s working from the Health Centre, and amongst new factories on a Trading Estate. A concrete answer about the type of I.M.O. to be employed will not be obtainable until an experimental service in a typical industrial area such as Tyneside is set up. A further future imponderable, which will influence this question, is the future role of the G.P. in the National Health Service. At present his place here is changing and is the subject of much debate. It would appear that as clinical problems become rarer and more profound, they will become concentrated in hospital beds and out-patient departments. Much of the G.P.'s work in the future may lie in the field of preventive medicine. In these circumstances his training and interests will gradually come to accord with the basic spirit of an I.H.S. One of the main disadvantages to his employment would then disappear.

Overall it is thought that this work in medium and small sized factories lies, in the future, within the province of the G.P. The large industrial units or the company owning a number of different sized factories in a convenient geographic area will probably in the future, as now, prefer to organise their own I.H.S. and employ full-time career I.M.O.'s. The smaller independent concerns, however, will join a co-operative type of I.H.S. either voluntarily or under legislative coercion. They will need to find most of their medical manpower from amongst the local G.P.'s.

The place in an I.H.S. of those doctors who are not committed primarily to a domiciliary practice should not be ignored. This group includes retired doctors, married women doctors with family commitments, and people with other part-time appointments outside general practice. The total number of such persons available in any one area would require investigation before any large scale I.H.S. was inaugurated. It may be that such doctors, who are not preoccupied with the work of a general practice, would prove to be highly suitable part-time I.M.O.'s. It is possible, for instance, that they would be able to devote a larger proportion of their time to the work and be able to attend, preliminary, and subsequent instructional courses in the subject, more readily than would G.P.'s.

The precise administrative method of fitting these various types of I.M.O.'s into the framework of an I.H.S. has already been considered.

c). <u>Full-time First Aid staff.</u>

In principle it would be unwise for an I.H.S. to employ semi-trained full-time first aid staff in preference to trained and qualified nurses. This, however, is in fact done, as has been seen in Chapter 13, by much of Tyneside industry. The same practice is followed throughout much of British Industry. The arguments in favour of such people are numerous and must be considered. There is the point of view, already mentioned (Chapter 13), that some of the heavier industrial work is unsuited to the presence of a woman in such hazardous situations. This, it is submitted, is an argument that in part, is based upon a subconscious resistance to any change in the existing pattern of life. This verbal argument is used simply as a convenient way of articulately expressing this emotion. The fact that the National Coal Board, which controls the most hazardous of all British industries, has deliberately sought to employ females is a potent argument against this. Furthermore, whilst admitting that trained male nurses are few in number, this does not explain why many of those who use this argument have never attempted to seek the services of these men (Chapter 13). In other industries it is often found that first aid workers of either sex are employed in preference to nurses. This raises the second point used by those who favour the employment of first aid, as opposed to nursing staff, in industry. Trained nurses, it is said, are much more expensive to employ than are first aid workers. This is not denied and the extra cost may be as much as £300 per annum. This sum is paltry, when it is compared to the total running costs of the type and size of factory, which provide sufficient daily work to keep a trained nurse fully occupied. Many of the first aid workers, who are employed in lieu of a trained nurse, are married men with family commitments, who could not afford to remain in this type of employment if their weekly wage was very much below that of a trained female nurse. There is a more potent argument, against the employment of trained nurses in industry, when the general national shortage of nurses is pointed to. It is argued, under this objection, that trained nurses are better employed in the curative work of a hospital, than in the supervision and treatment of minor conditions in a factory medical department. If this argument is confined to the merely curative work of an Occupational Health Nurse, this point is probably valid. Nevertheless, it completely overlooks the more important preventive aspect of the work of the skilled nurse in industry. The argument stems from the still largely unrealised fact that the prevention of illness is the main responsibility of these nurses. It is rarely argued, for instance, that the preventive work of the trained Health Visitor is a waste of nursing personnel, although there may be debate from time to time about the exact nature of their work. Finally, it is often stated by the employers of first aid workers, that their employees would be more reluctant to be attended by a female than by a male. The fact that many of the first aid attendants are women would seem to invalidate this as a general argument. It rarely happens that a man refuses the attentions of a female nurse whilst in hospital, and it is difficult to see why there should be any difficulty over this in a works' surgery.

<u>In Summary.</u> There would seem to be a complex of objective reasons and prejudices aginst the

employment of trained nurses in industry. Behind all these it is suspected that there are two, almost subconscious, main attitudes. Firstly, many managements fear that the employment of a trained nurse who works within a code of ethics, may result in a clash of interests. It is difficult to impose managerial policies upon a professional person, if these policies conflict with the ethics of that person's profession. The weakening of managerial control in these circumstances, and a lack of managerial experience in handling such situations, together produce a type of apprehension about employing trained nurses. Secondly, there is a real lack of appreciation of the additional quality, and type, of service that would be obtained by employing trained staff in preference to untrained auxiliaries. This in particular applies to those preventive services that should be obtained by employing a properly trained Occupational Health Nurse. Overall it is considered that trained Occupational Health Nurses should be employed by an I.H.S. in all circumstances, in preference to First Aid personnel. The position of the trained nurse without specific occupational health training and/or interest, is a slightly different one. Many nurses enter the industrial field because it seems to provide a "soft option" when compared with the more rigorous hospital life. Many of these women are medically unsupervised and only responsible to uninformed lay managements. This often means that, in fact, they perform duties in the curative field which could equally well be done by an experienced, enthusiastic and intelligent first-aid worker. It is past experience with this type of nurse that leads industrial management to have little preference for the nurse over the auxiliary. If adequate medical supervision is provided, within the administrative framework of an I.H.S., the trained nurse of this type can more easily be turned into a valuable Occupational Health Nurse than could an untrained auxiliary.

Despite the preference that an I.H.S. should show for the trained nurse, there will have to be a place found for the full time first aid worker. Some of the concerns wishing to join an I.H.S. will already be employing such persons, and to terminate his or her employment, with this change of circumstances, would be unjust. This position is [redacted] discussed on page 285. A pilot Industrial Health Service may show that there are insufficient nurses available, and dilution with auxiliaries may become necessary.

The discussion above refers mostly to State Registered Nurses (S.R.N.'s) only. The use of State Enrolled Assistant Nurses (S.E.A.N.'s) in industry was recommended by the Dale Committee ([redacted] Chap 18) and as seen from Chapter 13 is widespread. If suitably experienced and supervised, these latter nurses would offer a better means of diluting the specialised S.R.N.'s, than would the use of First Aid auxiliaries.

d). <u>First Aid staff employed incidentally upon these duties.</u>

As was shown in the administrative structure, it will not be possible for a trained nurse to be stationed at every factory for all the hours that work is being done there. Many factories, for example, continue to employ small maintenance staffs during the night-time, and it is unjustifiable to provide full nursing cover for such small numbers. In this, and other situations, there may be times when an injured or sick person needs immediate and elementary care. This will be true first-aid assistance. It should be provided until more skilled attention can be given by a nurse and/or doctor. For these purposes, it will still be necessary for each factory to recruit a cadre of employees trained in the elementary management of emergency accidents and illnesses. These people will not be employees of the I.H.S., but they should receive from their employing firm some remuneration, in cash or kind, for their service. This should also provide sufficient incentive to participate in this work. Today there is a shortage of recruits who volunteer for such work from purely altruistic motives, and an attractive incentive appears to be necessary.

## <u>RELATIONS BETWEEN THE I.H.S. AND THOSE CONCERNS ALREADY PROVIDING AN I.H.S.</u>

Where it proves possible to establish a voluntary I.H.S., of the type described, it will often be found that a few of the companies in the locality are already providing some form of I.H.S. in their factories. It is the relations between these companies, the health personnel they employ, and the co-operative I.H.S., that will now be considered.

In the first instance, one of these concerns may wish to join the I.H.S., and replace its own facilities by those offered by the I.H.S. Any full-time personnel employed by the firm on these duties must, of course, be offered similar employment by the I.H.S. under these circumstances. Whilst this may result in some less desirable staff being employed for a time by the I.H.S., it is considered that it is necessary that this should be done to avoid suspicion about the intentions of the I.H.S. Probably only the smaller firms, with a single full-time nurse or auxiliary, will be attracted by the service in this way. Those large concerns, which already employ a doctor and one or more other staff, will probably consider that they are capable of providing the factory level of the service as effectively and more economically for themselves. Their possible participation in the consultant level has been touched upon (page 262). Should the R.H.B., or other governmental body, provide some, or all, of the suggested consultant service, then all firms, whether members of the factory level service or not, would have right of access to its facilities.

A third group of firms may wish to become only limited members of the factory level I.H.S. These firms should NOT be allowed to choose which of the range of services they will, and will not provide. If a company wishes to join the service to expand the scope of its own limited I.H.S., whilst still retaining the control and employment of its existing services and personnel, this would be acceptable. It must be understood by these companies that the net result of this combination must be a service as comprehensive in range and as high in quality as the co-operative I.H.S. itself. If that part of the I.H.S. which the firm retains under its own control falls below the desired minimum, the right for the co-operative I.H.S., to withdraw its part of these services, must be reserved. This avoids the I.H.S. being branded with the stigma of providing a respectable facade, behind which an unscrupulous company can provide inferior care at a fractional cost. The professional direction of any staff, such as nurses, retained in these part-members' employment, must lie with the senior visiting staff of the I.H.S. Those firms who provide no facilities at present, and, simply wish to provide that part of the services of the I.H.S. which <u>they</u> consider necessary, will not be allowed to become members of the service. The motives behind such manoeuvres are always suspect, and once the Council of Management has accepted the definition of the functions of an I.H.S., this should act as the code of good practice for all its actual, and potential, members.

In all cases where there are health personnel engaged in local factories, which are not members of the service, opportunities for friendly discussions of mutual problems must be provided. There must not be allowed to grow a feeling of competition and antagonism between the two types of factory health service. Only personal contact will prevent this.

## <u>RELATIONSHIP BETWEEN THE FACTORY LEVEL I.H.S. + EXISTING GOVERNMENTAL AUTHORITIES.</u>

### <u>Introduction.</u>

It is proposed to discuss here potential relationships between the factory level I.H.S. and various State agencies. There has been much debate about the responsibilities of the Government to provide for the health of people whilst at work, just as the comprehensive National Health Service provides for them in many other spheres.

The functional outline sketched above probably represents the optimum method of organising a factory level I.H.S. for the many medium and small factories. A coordinated scheme of this sort would prevent the development of piece-meal schemes by each separate firm; it would allow a more rational use of skilled personnel and resources; it would ensure uniform standards of care, and would eventually provide a service into which the recalcitrant employers could be compelled to fit by means of legislation. Underlying this is a fundamental question of social policy. Should the organisation of such a service be left entirely in the hands of a private body such as the Councils of Management, in the case of this I.H.S., or should the whole service be subject to a strict and detailed governmental supervision and possibly direct control? (It is assumed here that a point has been reached, in the development by voluntary agencies of these Services, at which some legislative national action has become feasible). If the management of the factory Industrial Health Services be left to co-operative bodies of employers some basic standards must be prescribed by legislation, and these must be enforced by an inspectorial system backed by legal sanctions. If, on the other hand, it is decided that more direct governmental intervention is needed in this field, which of the existing governmental agencies is to be charged with the responsibility, and what form will its management take? It may, of course, be desirable to establish a new and separate body to undertake this work, but even so this would presumably come under the ultimate control of one of the larger existing Departments of State. Should eventual direct governmental participation in the services be likely, it is considered that the agency most likely to be used should be associated with the earlier voluntary ventures in the field. In this manner its suitability for the task could be explored. Thus, for example, if it is considered that the local authorities willbe ultimately given some responsibilities in an I.H.S., it would be opportune to explore, experimentally, such a relationship in the earlier voluntary schemes.

Central Control. It is first necessary to discuss if such a direct governmental intervention within industrial establishments is at all likely. The only direct governmental enquiry so far, the Dale Committee, found that more investigation and experiment was needed before any policy could be recommended to the Government. Further debate, stimulated by more investigation, and the publication of concrete data upon which to argue, may well lead to a governmental appraisal of the problem. It would seem to be likely that, in the future, an increasing weight of public opinion will force upon the State some form of further action. On the other hand, the present day financial position of the State, would seem to be against any further large scale committments of Exchequer monies to an extension of the National Health Service. Much large scale capital investment for the N.H.S. had already been undesirably delayed, because of the unexpectedly large running costs of the service. It would seem therefore, that any governmental participation in a national I.H.S. in the immediate future would be severely limited by financial considerations. Even so, indirect financing of such a State service could be achieved by making its costs a direct charge upon industry, or by some similar means. If such a solution to the financial difficulties were devised, it is likely that the main burden would be borne by the employers. Should this be so, there would be strong pressure brought to bear to allow a large measure of the executive control to be placed in the hands of management and, probably in addition, of organised labour also. As stated, management of private industry would resent any form of direct State intrusion into the detailed workings of their establishment. If their sincere co-operation with the aims of an I.H.S. was not obtained at the beginning of the service, it is doubtful if any worthwhile service could be established. This co-operation could probably only be obtained by allowing them a large part in the control of such a scheme. On the other hand, the natural anxieties aroused by such an arrangement, in the minds of the employees, would have to be likewise allayed by allowing the representatives of organised labour a similar share in the control. If this tripartite control by all the interested parties was to be local then, it is suggested, that some modification of the outlined scheme for the factory level I.H.S. could well serve this purpose. Centralised supervision of these nominated bodies could then be given in muuh the same manner as the Ministry of Health now supervises the work on the nominated Local Executive Committees and Regional Hospital Boards. Even so, it is doubted if such an arbitrarily appointed body would secure the whole-hearted co-operation of much of management. Nevertheless, a degree of hostility from some parties to some aspects of the scheme may have to be accepted, in order to obtain the optimum amount of co-operation all round.

To ensure co-ordination of this new health service with the existing services, it would appear logical that the Ministry of Health should be given the central control. This Ministry would prescribe standards and issue principles for guidance, and these should ensure uniformity of staffing and care. On the other hand, the Ministry of Labour and National Service has a wider and much more intimate knowledge of the workings of industry, and has a wealth of accumulated experience behind it. The Factory Inspectorate, which relatively recently became a part of this Ministry, has its own unique contribution to make to the running of an I.H.S. Both of these bodies have no direct experience with the running of an I.H.S., but the Inspectorate, through its medical branch, has experience of enforcing the minimal standards at present prescribed in this field. It can well be argued that an accumulated experience in the working and the ways of a complex industrial pattern would be better fitted to controlling an I.H.S. than would the experience of running the N.H.S. in a completely different setting. The respective advantages gained by the choice of either of these Ministries seems to be finely balanced. The ultimate nature of the State control will probably determine which of these will be given the responsibility. Should a more detailed State participation in the factory work of the I.H.S. be decided upon, the experience of this type of machinery, which the Ministry of Health has gained from the N.H.S., should result in it being given the task. If the State is content to allow private industry to organise this level of the I.H.S. itself, and intends merely to prescribe, by legislation, the standards to be observed and the sanction to be applied, then the Ministry of Labour would appear to be the better choice. In these latter circumstances the inspectorial function needed, to ensure compliance with these standards, would devolve upon an expanded Medical Factory Inspectorate.

It is considered that this latter type of machinery is probably best suited to the solution of this problem. It would avoid the bulky and complex administrative machinery needed if detailed administration of the scheme were embarked upon. The financial tangle would be solved, as the financing of the service would be done by industry itself. Little managerial resentment would be aroused, as independence would be safeguarded. The scheme would also be flexible to allow room for further modification and experiment. Organised labour would have to be reassured that in the running of such a service its interests would be protected, by being allowed an adequate voice in the affairs of the I.H.S. These interests would be further protected by the system of inspection that would be introduced. There is a dangerpresent in this system of prescribing statutory standards of service which must be guarded against. Such standards are minimal ones, and are usually drawn up in such a manner that they do not throw an intolerable financial burden upon those who must comply with them. Thus the less wealthy or efficient firm can have no excuse for not complying with them. A similar type of concern which is wealthier, and probably more efficient, can thus escape at comparatively much less cost, by providing facilities much below those it could well afford. This situation is exemplified in the application of the health and welfare Orders made under the Factory Acts. It may be possible, to link the future standards of an I.H.S. to the level of profits made by individual firms over a period of time. This would remove one of the difficulties of this method of control.

The above paragraphs have dealt with the mode of control to be exercised over any future national extension of an I.H.S. The following paragraphs will deal with potential fields of co-operation between the factory I.H.S. and existing State health agencies, and particularly with local authorities.

<u>The Regional Hospital Board.</u> The potential future role of the Regional Hospital Board has been covered already. As has been discussed it is considered that the consultant tier of the I.H.S. should be the sole responsibility of the Government. The facilities needed by it are largely State controlled already, and the extra scientific staff and equipment that will be needed to cover a regional area, would, also, be more appropriately provided by the State. The cost of this part of the I.H.S. would be high in relation to the amount of work it could perform, which would have immediate results. If this part of the service were State, rather than privately, financed there would be less possibility on these grounds of it being truncated, before it could prove itself. The co-operation between the R.H.B. and the factory I.H.S. would result from mutual interest in, and work on, Occupational Hygeine problems. There may be in addition a place, in the future, for the R.H.B. to give more consideration to the needs of local industry, when planning and organising their casualty departments (Chapter 15). There is some elementary evidence that the needs of industry have been overlooked in this connection in the past. Further investigation would be needed before any more concrete suggestions could be made in this respect.

<u>The local Executive Council.</u> If much of the medical staff of any factory level I.H.S. is to be recruited from amongst the local G.P.'s, then it is logical to assume that, this Council should find some related function to perform. As has been seen from Chapter 14, there may easily be more doctors willing to undertake this type of work than there is adequate work for in any one locality. The I.H.S. must, of course, maintain its independence in choice of staff, but in some pertinent matters it would be impossible for this choice to be made upon the basis of fact. It is, for example, impossible for the I.H.S. to come to any objective decision about whether a particular G.P., who wishes to work for the service, has too many prior committments to be able to devote adequate time to this extra work. The doctor himself, presumably, thinks he has, or would not consider taking on the extra burden. In the light of the situation discovered in Tyneside industry, it appears he may not necessarily be the best judge of this. On the other hand, it would not prove possible for the Local Executive Council to state 'without disclosing specific confidential information' whether a particular doctor's committments were considered too great to allow him to assume extra burdens, without one or other aspect of them suffering. As a result it is felt that if the I.H.S. is not to be accused of diverting medical

time away from general practice, to the latters' detriment, there must be some objective way of assessing this point. It would seem that a joint selection committee of the I.H.S. and the Local Executive Council would solve some of these problems. There need be no disclosure of confidential information by either part of this joint body, but the decision to appoint a particular I.M.O. would need to be unanimous by the respective halves of it. Should there be too many applicants for the number of posts available, then both sides of this committee could assess each candidate according to its own particular criteria. The most suitable doctors, in the eyes of both the halves of the body, could then be selected. There will, of course, be objections, to the participation of members of the Local Executive Council on such a selection committee. Such objections may prove too strong to be overcome. The I.H.S. would then be forced to fall back upon much less objective, and far less satisfactory, ways of deciding upon the ability of candidates to adequately fulfil their committments to it.

The Local Health Authority (L.H.A.) This third arm of the existing N.H.S. would potentially seem to have much to contribute to an I.H.S. Some of the numerous suggestions about the place of the local authorities in such a service have been reviewed in Chapter 18 . What is considered to be the best method of administration of such a service has been already outlined. The case for the local authorities has been so strongly pressed in the past that it is considered it should be given some extended consideration here.

The Local Health Authority is the only part of the existing Health service which is charged with any specifically preventive functions, both environmental and personal. Because of the similarity between the present-day work of the L.H.A. and the projected functions of an I.H.S., there is a logical reason for suggesting the amalgamation of the two types of service. Briefly these suggestions consider that all future health provision for industry should come under the control of the L.H.A. and the detailed administration of the service should be the responsibility of the local Medical Officer of Health. The personal and environmental services would then be provided by supplemented staffs of doctors, nurses and Public Health Inspectors. These people would provide services, similar to those which they provide today, but in an extended sphere and after appropriate extra training. These extended functions could only be assumed by those Local Authorities which have the ample resources which would be necessary. The present County Boroughs, who control both personal and environmental services, and who have concentrated within their limited areas all the potential industrial responsibilities, would be faced with a relatively simple problem of organisation. The two tier authorities, namely the Administrative Counties would have a very much more difficult organisational task. In those few areas where the County Council has delegated its personal health responsibilities to the second tier authorities, such as municipal boroughs, the problem would then be approximately the same as in the County Boroughs. For the large majority of areas, however, the situation, on the present day analogy, would be that the environmental control of industry would be provided by the second tier authorities, whilst the personal services would be provided by, the administratively different, county authorities. A complex problem of co-ordination between these bodies would then arise. Whilst the same problems arise in other fields, at the moment it is suggested that personal and environmental problems arising in industry are so intimately intermixed, that such an artificial separation of responsibilities would work most inefficiently in practice. Some major form of administrative reorganisation, therefore, would seem to be a prior necessity before the L.H.A.'s could provide an adequate I.H.S. The obstacles in the way of local government administrative reform are notorious and the integration of an I.H.S. into a L.H.A. service could only be an incidental result of a much wider, and more complicated, administrative reform. There are signs that some tentative steps are to be taken in this direction in the future. The whole complex machine of local government would then be preoccupied for some considerable time with adaptation to these changes, and any extra addition to these burdens may well result in this new responsibility being overshadowed. It would seem, that at least until the larger problems of reorganisation have been clarified, there should be no novel addition to the function of the health responsibilities of these bodies.

Despite these administrative difficulties there are other cogent reasons for not alloting the control of an I.H.S. to the L.H.A. The present staff, medical and lay, whilst imbued with the preventive outlook, are skilled and specialised in a field which has little but this philosophy in common with the subject of Health in Industry. A new cadre of personnel specifically trained in this field, would need to be recruited or, alternatively, some intensive in-service training would need to be given to existing staffs. If the scope of present responsibilities were to be retained this would mean a considerable increase in numbers of all grades of staff. These extra personnel would have to be recruited from somewhere, no matter how an I.H.S. were organised. It must be faced, that at the present moment, employment by a Local Authority is not favoured by those people who have the necessary basic education needed to undertake this work. There is a shortage, of both Public Health Nurses and Inspectors in nearly all L.H.A.'s today. There are numerous and varied reasons for this situation. One of them is that, to many, the present type of L.H.A. work is not attractive enough in itself. The addition of Industrial duties may go some way in part to alleviate this. Another potent reason is that L.H.A. work offers comparatively poor remuneration, compared with its competitors, for these skills. To remove this last source of unpopularity there will need to be some thorough reform of local Government finances, this, in turn, is bound up with the other reforms needed in Local Government. The difficulties here have been mentioned.

Finally, there is the recurring problem of the attitudes of industrialists. Most persons, in positions of responsibility in industry today, consider that the ability of the elected representatives of local authorities is low. Large units of industry are usually run by people of outstanding administrative ability. The steady upward trend in the improvement in quality of management in British Industry will continue until it pervades also the smaller factories. Professional managers are naturally hostile, to what they consider to be, interference in the internal affairs of their plants. If this interference results in public discussion of their affairs, in a council chamber it will be resented all the more. It is not suggested that this would, necessarily be the eventual position. It is, however, the way in which much of industrial management view the possibility of the local authorities controlling an I.H.S. Under these circumstances, the chances of the I.H.S. gaining the vital co-operation from management is slim. Of all the possible methods of State provision, or supervision, of an I.H.S., it is this suggested Local Authority control, which arouses the most opposition in the Board rooms. The real fear is that confidential industrial information will become the property of local politicians who will be at liberty to discuss and comment upon it in public. On the other hand, there is a real democratic safeguard in having elected local representatives controlling the service.

Overall, the difficulties of organisation, of attracting able staff and of overcoming industrial hostility would, at present, seem to rule out the L.H.A. as an agent for the provision of an I.H.S. Should there be some comprehensive reform in the control and duties of this preventive arm of the N.H.S. there would be, on the basis of logic, a good case for fusing all the preventive services of the country under one administration.

CONCLUSIONS AND SUMMARY.

Any future I.H.S. for the country should be organised upon the basis of convenient geographic regions. It should be a two tier structure, one responsible for the day-to-day clinical and preventive duties within the factories, and the other a consultant tier providing appropriate advice and facilities for the field level of the service. The factory service would be organised within smaller geographic areas determined by the size-structure and nature of local industry. These would be controlled by a nominated Council of Management chosen from amongst the participating firms, and from other interests, such as organised labour and the medical profession. Several of these units would be grouped together to benefit from the services of the consultant tier, which would be organised upon a regional basis similar to the present R.H.B. regions. The R.H.B. would, together with the P.H.L.S., provide the consultant tier with all its personnel and faciltiee. Similar, or smaller groupings, of the factory tier areas would be under the administrative care of a full time Medical Director, who would be the executive officer of each separate Council of Management. Full time nurses and a few full time I.M.O.'s would be employed by each Council. The rest of the medical staff would be drawn from amongst local G.P.'s who have the interest and time for such work. The factory level service would be financed by direct per capita contributions from the member firms. Standards of staffing, equipment and care would be issued and supervised for this level, by an expanded Medical Factory Inspectorate, which would remain under the control of the Ministry of Labour. To obtain information about the levels of the standards to be prescribed, and to experiment with the suggested structure of an I.H.S., a large scale regional experiment is necessary. This regional experiment should be preceded by a much smaller pilot experiment, within the projected region, in order that the more fundamental data needed could be obtained. This pilot scheme would collect rudimentary information about such matters as staffing and equipment levels, internal and external relationships, financing, etc. All of this would allow the larger, regional experiment to be organised upon the lines most liable to produce worthwhile planning data. Both the pilot and the regional experiments would be voluntary projects and the national plan, as outlined above, would only be implimented by legislation, as a result of the experience gained with it. The area Councils of Management in these voluntary social experiments, would represent the share owners of nominal, limited liability companies, which would be the corporate form to be taken by these voluntary associations.

Alternatives to this plan have been examined and the advantages and disadvantages of each explained. Any radical reform in the structure of

Local Government, may allow the L.H.A.'s to assume greater responsibilities in a future I.H.S. Modes of co-operation between this projected service and other agencies have been explored. Those large industrial establishments that are able to provide an I.H.S. up to the standards to be prescribed would be allowed to do so. Those factories which could not attain the statutory standards individually would be compelled to join the co-operative scheme outlined.

It must be emphasized that a great deal of future experiment is needed in the social planning of an I.H.S. for industry as a whole. Vital basic planning data is still grossly lacking, and in the light of such future data considerable modification to the above plan is envisaged.

# Chapter 21.

## An outline scheme for the development of the Industrial Health Services of Tyneside Industry.

Before the scheme for development of a Tyneside Industrial Health Service (T.I.H.S.) is considered it is necessary to reiterate some of the points which have been made in previous chapters.

There can be little doubt that the, as yet unserved, smaller factories would benefit from the provisions of an Industrial Health Service. The fact that larger factories have considered it worthwhile to make provisions in this respect must also mean that those factories employing under 500 people would also benefit from such a service, if it could be provided. The methods of doing this have been one of the main subjects under discussion. However, it has also been seen that even those larger factories which do provide a type of Industrial Health Service for their employees rarely provide one which conforms to the code of good practice of such a service. Thus apart from the problem of making some type of provision for the medium and small-sized factory, there is the additional problem of improving the quality of service of the services already povided ~~to~~ by the larger units. Under the joint State and private industry venture described this would be ensured by statutory provisions, but in the preceding voluntary schemes it is hoped the same high standard ~~of the co-operative I.H.S~~. would be emulated.

There are many peculiar local fetures which must be considered when approaching the organisation of a Tyneside I.H.S. on the basis of principles outlined in Chapters 19 and 20.

1. The Historical background of Tyneside has been shown to play a deep-rooted part in the thinking of local people. The immediate history of the inter-war years is a prominent factor here, but older history has almost as important an influence. The pride in 19th Century achievements in industry and a conservative attitude towards any new influences, are potent factors to be considered when attempting such an innovation as the introduction into industry of a health service. If this is to be financed and controlled by industry itself, the aims and methods of this service must in particular be generally accepted before the venture is begun.

2. The future of an industrial area with an unstable economic history, such as Tyneside has had, must also be examined before any elaborate social experiment such as this is planned. The failure of such an experiment, for extraneous causes beyond its control, may prejudice the chances of success of any similar venture for many years to come. It would seem that the economic future

of Tyneside may not be so stable as some other districts, with more widely diversified industries. The change in economic thinking over the last decades, plus an increasing diversification of local industry due to the establishment of many new and non-traditional industries, should prevent any catastrophic collapse such as afflicted the region in the 1920's and 30's.

3. Local industrial geography must also be considered in any planning. If the service is to be of the co-operative type outlined, the geographic distribution of the industry it serves must have a considerable influence upon its final shape. The different industries on Tyneside, apart from shipbuilding, are so widely scattered as to make the organisation of an I.H.S. upon the basis of similar industries with common problems, almost functionally impossible. It must be realised that, with the possible exception of shipbuilding, and I.H.S. for Tyneside can only be effectively organised on the basis of several geographic sub-areas. Whilst these areas will probably not correspond to the divisions used for this Survey the industrial characteristics of each of the four Survey sub-areas will be considered here to illustrate the difficulties ahead.

The intense concentration of the shipbuilding and repairing industries along the narrow riverside strip of the lower seven miles of the river, may allow this industry to be covered by its own I.H.S. On the other hand there is an intense concentration of small and very small factories in Newcastle, particularly engaged in the production of food and drink, clothing, paper and printing, and upon the repair of vehicles. This means that an I.H.S. for this area will need to be based upon some different modification of the theoretical plan. In these two areas the peculiar local industrial structure is closely linked, for planning purposes, to the peculiar topography and the means of communication. In designing an I.H.S. for each of these areas wight will have to be given to all these factors. In the South-West sub-area the industrial pattern is again quite different. The dominance of the Team Valley Trading Estate, with its large number of new, widely diversified, and medium sized and small factories, makes the likely scheme of provision for this area quite different from that for the others.

There are other immediate local problems, which would need further consideration, when the promotion of a Regional I.H.S. becomes a practical possibility. The few examples above are meant to illustrate that no single comprehensive plan would seem to be sufficient for an industrial region such as Tyneside. Whilst much intelligent anticipation of future difficulties can result from the findings of a Survey such as this, only development work with an actual I.H.S. will reveal some of the, as yet, unknown problems. The limitations of the Survey itself allow some of these problems to be apprehended. The concentration upon the purely manufacturing industry of the region has meant that much of the non-industrial, commercial, and distributive trades have been ignored. It has been illustrated that there is a heavy preponderance of such activity in Newcastle. Further investigation would need to be made of this situation, before the form of any really comprehensive plan for caring for the health of ALL people at work could be devised, even for the limited geographic area of this one city.

4. <u>The Distribution of the Working Population</u> throughout various industries and sub-areas must also affect the design of an I.H.S. The geographic distribution of their employing industries, as seen above affects, in part, the <u>physical</u> distribution of the facilities of the I.H.S. The nature and distribution of the industrial population of each sub-area will affect, however, both this and the actual TYPE of the health provision to be made within that area. Thus the overall nature of the services to be provided for the new and widely diversified factories of Team Valley, may well have to be quite different from that provided for the shipbuilding industry. The concentration of office and non-industrial workers in Newcastle will mean, that the emphasis in function will have to be different here than in the North East, which has a very high proportion of people employed in shipbuilding and heavy engineering. Similarly some attention will need to be paid to the age and sex structure of the working populations of different areas. Whilst the age-structure itself may well be of little importance in any one area, the sex structure must be further considered. There are, for example, many more women employed in Newcastle than in in the North-East sub-area, and this will affect the detailed functioning and provisions of any eventual service for these two areas..

5. <u>Existing health provisions and social conditions</u>
The location and functions of the existing hospitals in relation to industry in general and to the new I.H.S. in particular would, for example, need to be the subject of discussions with the appropriate authorities. A better method of co-operation between them, if not of integration, will need to be sought. Similar considerations apply to the Local Health Authorities and to the Executive Councils. All these relationships will be related to the existing social background of the area, and particularly to the housing conditions. The existence of a system of adequate care, treatment and supervision at work may mean that, henceforth the existing health agencies may be able to allow some of their previous domiciliary and institutional care to be carried out whilst the man is being rehabilitated at work. This will prevent him receiving this at home, often under poor circumstances, which are the worst rehabilitative circumstances, also, before he is declared fully fit for his job. Housing is so congested on Tyneside, that there must be many occasions where the con-

valescent employee would be better cared for at work, whilst being gradually retrained and rehabilitated under supervision. On the other hand, much of the newer housing is situated at some distance from the main centres of manufacturing industry, ~~and~~ this may mean that those living under these better circumstances, and some distance from their work would, in fact, be better rehabilitated in their own homes, with the aid of the Local Health Authority.

Pilot Industrial Health Service.

It has been frequently mentioned in preceding paragraphs that before any regional experiment can proceed, ~~with~~ experience with a small pilot I.H.S. is needed. This will collect basic administrative data about the possible workings of any future larger schemes. An attempt was made, as a result, to explore thoroughly amongst management and organised labour their opinion on the subject, in the area chosen for this initial experiment.

The area of this pilot experiment was chosen with several definite criteria in mind. It was to be reasonably compact, but must contain a sufficient number of factories of different sizes and types to allow a broad enough experience to be gained. On the other hand, the experiment had to be kept sufficiently small to allow the mistakes and misunderstanding which would inevitably occur, to be confined to a limited area. It was also considered that the area should contain few, if any, factories which already provided some form of I.H.S. and employed some specific staff for this purpose. The problems and difficulties with this experiment would, probably, be sufficiently numerous and complex, without throwing upon it the extra burden of exploring the pattern of relationships to be developed with established personnel and services. For similar reasons the employment of a single full-time I.M.O. to staff this small service was contemplated, to the exclusion of part-time I.M.O.'s recruited from amongst local general practitioners. This arrangement would allow a full-time doctor to devote a proportion of his time to development, and to the consideration of administrative problems. The preoccupied G.P. would not be able to do this. These more nebulous problems of personal relationships were to be left for exploration in the larger, ~~wider~~ area I.H.S. ~~would~~ which would follow upon this pilot scheme.

The area chosen for the Pilot Service was at the western-most end of the Survey Area. The main industry of the area was located in and around the town of Blaydon. The villages of Newburn and Lemington, on the opposite bank of the Tyne, also had some industry as well. There, thus, had to be some readily accessible bridge across the river to allow communication between the opposing banks. The centre of the area for the service was chosen to be the single bridge in the locality. Within a radius of 1½ miles from this bridge lay the majority of local industry. This distance was also arbitrarily reckoned to be the maximum effective operating radius of the nursing staff of the service. There were, 28 factories, within the Survey Industries, operating in this small area. The breakdown by size and activity is shown on table and table . Altogether they employed a total of 5,680 people. Two of them employed full-time trained nurses, and one a full time untrained female auxiliary. None of them employed any full-time medical staff, and only one had the regular sessional service of a general-practioner-I.M.O. This was as close as it was possible to come to the desired criteria.

Each of these factories was visited and their managements were interviewed. The aims and the form of the proposed service (as stated in Chapters 19 and 20) were outlined to them, and their reactions sought. These are shown on Tables 114 and 115. It will be seen that only seven of the firms rejected the proposals completely and each of these employed under 100 people. The medium sized unit which rejected the approach was already served by an unsupervised trained nurse. All the three managements whose attitude was "unknown" preferred to wait upon the results of the intial experiences, with the experiment, before making a definite committment. One of these was the establishment which already employed a part-time I.M.O. as well as a full time nurse. The three whose co-operation was classed as "doubtful" all decided that they would wait until more concrete proposals were made before refusing or accepting them. It was most encouraging that a total of 15 firms employing some 3,380 people were willing, at this early stage, to commit themselves to co-operate, without any real indication of how the service would eventually benefit them, and fully knowing its experimental nature.

Many of these 15 managements realised that, whilst larger firms felt the need for, and were able to supply an I.H.S. they, being smaller, were individually incapable of doing this. The suggested mode of voluntary co-operation, to achieve this purpose stirred their imaginations and seemed to provide a way of meeting the challenge of the wealthier companies. The financial charge to be made to each participating firm was estimated to be 35/- per employee per annum. This was based upon a realistic assessment of the cost of a service of this type and quality. The financial estimates of the service were professionally scrutinised and this figure of 35/- was estimated to be very close to the actual running costs of the service. It had been anticipated that many firms, particularly the smaller ones, would state that this charge was much too high, and could not be borne. In fact none of the firms rejected the service for financial reasons alone, although some of them included it, as one of several reasons for delaying or refusing participation. The charge

Table No. 114

Pilot Industrial Health Service.

Degree of Co-operation by Size of Concern.

| No. of Employees. | Attitude. | | | | |
|---|---|---|---|---|---|
| | Co-operative. | Co-operation doubtful. | Attitude Unknown. | Rejected. | Total. |
| Under 20 | | | | 3 | 3 |
| 20+ | 2 | 1 | 1 | 2 | 6 |
| 50+ | 4 | | | 1 | 5 |
| 100+ | 4 | 1 | | | 5 |
| 200+ | 2 | 1 | 1 | | 4 |
| 500-1,000 | 3 | | 1 | 1 | 5 |
| Total | 15 | 3 | 3 | 7 | 28 |
| Total Employees | 3,380 | 640 | 1,000 | 660 | 5,680 |

Table No 115.

Pilot Industrial Health Service.

Degree of Co-operation by Type of Concern.

| Description of Process. | Attitude. | | | | |
|---|---|---|---|---|---|
| | Co-operative and probably co-operative. | Doubtful | Attitude Unknown. | Rejected. | Total. |
| Heavy Engineering | 4 | | | 1 | 5 |
| Medium Engineering | 1 | | | | 1 |
| Metal manufacture and fabrication. | 3 | 1 | | 2 | 6 |
| Chemicals, fertilisers and plastics. | 1 | 2 | | 2 | 5 |
| Bricks, tiles and building products | 4 | | | 1 | 5 |
| Ropeworks | 1 | | | | 1 |
| Bedding Manufacture | | | 1 | | 1 |
| Glass and insulating materials. | | 2 | | | 2 |
| Paper box manufacture | | | | 1 | 1 |
| Blind workshops | 1 | | | | 1 |
| Total. | 15 | 5 | 1 | 7 | 28. |

did not include any attempt to pay off the capital sum which would be needed for the equipment and premises of the service, which it was hoped to raise from philanthropic sources. This reaction to the financial aspects of the service was somewhat unexpected. It would suggest that much closer objective consideration must be given in the future to the maximum costs of an I.H.S., which the smaller factories could be expected to bear. It must, however, be noted that none of the 28 firms approached in this small study was in the "very-small" class, i.e. under 11 employees. These situation may well be different in the size group of factories.

First attempts to found a pilot I.H.S. on Tyneside were therefore encouraging. For reasons, which need not be considered here, there was considerable delay in actively following up this exploration, and the initial enthusiasm was allowed to die. No actual pilot service is in existence at the time of writing.

The form of this pilot experiment and the functions it was to perform were to resemble those already outlined in Chapters 19 and 20. These statements about the form and functions of the I.H.S. are intended to serve as the main guiding statements ~~about~~ for any extension of this projected pilot scheme. There will be an obvious need, for reasons noted above, for the detailed application of these statements to vary between differing geographic areas. It is, however, hoped that the general statements will prove sound as guiding principles for the practical applica-tion. With the application of these principles to larger areas, it should prove possible to test the relationship of the co-operative I.H.S. to the existing I.H. Services of other factories within the same area. Even more important, these larger area experiments are needed to establish the validity of the concept that much of the work of an I.H.S. should, and could, be done by local G.P.'s. // Assuming that it is possible to establish a pilot I.H.S., and obtain from it the desired planning data about costs, methods, of working, administration, control etc., then the time would eventually be ripe to apply its lessons to a larger area. This larger area should itself be approximately the size of one of the four main sub-divisions of the Survey Area, although not necessarily identical with them. This Area I.H.S. would also serve as an experiment and would provide data about several still unknown topics, some of which have been previously mentioned. It may also be opportune to explore with this larger Area Service the means of Regional Hospital Board co-operation, particularly the manner of employment of clinical consultants. It is suggested that this second phase in Regional development should cover much, if not all of the present south-west division of Tyneside. As will be remembered, this area contains, next to the North-West, much the most diverse industrial pattern, ~~both~~ in type, size and age of factories. It does not have the administratively complex problem of the non-industrial establishments which exists in the North-West, nor does it have the intense concentration upon the traditional industries which the North-East and South-East have. For providing much information on a diversity of problems, this area is highly suitable for the extension of the experiment. There are several drawbacks, however. It does not contain any shipbuilding; much of its diversification is the result of the presence of the Team Valley Trading Estate, whose factories have environmental conditions far in advance of any found elsewhere in the valley. Despite these qualifications it is considered, that, at this early stage of advancement of a large experiment, these are advantages which will be needed if it is not to become overwhelmed by too many simultaneous difficulties.

After a suitable period of operation with this larger Area scheme opinion on Tyneside will, it is hoped, have become accustomed to the concept. Some of the irrational conservatism which will have greeted it in the older industries, further downstream, will, also, it is hoped, have given way to a more objective attitude. It may be opportune at this point, to attempt to explore simultaneously the peculiar problems of organisation inherent in the large industrial and commercial city of Newcastle, and those of a single industry namely shipbuilding. These are both formidable undertakings and must only be attempted after the preceding experiments have harvested a fund of organisational data. The task of developing an I.H.S. in a densely populated city with poor communications, containing a mixture of non-industrial, and industrial establishments of all sizes, locations and environmental conditions is immense. On the other hand, the difficulties are also great in persuading a forcefully resistant and strongly organised body of employers, such as the shipbuilders, to co-operate in an I.H.S. These men have a highly conservative, almost reactionary, outlook on the subject of health care of their employees, whom they still largely regard with a "hire and fire" mentality. It is suggested that these two further extensions of the I.H.S. will in themselves be experimental. Their problems are original and their solutions cannot be gained from elsewhere, and have to be evolved as a result of experience ~~with them~~. It may be opportune at this time for the Regional Environmental Hygeine Service to be established in an embryo form.

It is not suggested that that sector of the Regional I.H.S. which is devoted to the shipbuilding industry should, necessarily, be exclusively to this one industry alone. The dense riverside concentration of the shipyards allows a convenient administrative unit to be evolved which will have good, waterborne, communications between its members. These conveniences, and the local importance of the industry with its many common problems, make it probable that an organisation of this type will yield much useful information.

The extension of these three basic units of the T.I.H.S. will allow all the main functional and organisational principles of both tiers of the Regional I.H.S. to be tested in practice. This experiment, if completed, will have taken place in a densely populated and industrialised area, which is more typical of the nature and organisation of British Industry in general, than is the location of any other similar experiments in this field. It should be possible to estimate, after this experiment has been extended throughout the rest of Tyneside whether the suggested pattern of organisation is suitable for further extension elsewhere, and, if not, what modifications are needed in the light of the experience gained with it.

## Chapter 22.

### Conclusion.

There are many different approaches to the problem of developing and extending the existing Industrial Health Services of the nation. The approach outlined in this thesis is merely an example of one of these. Many more Surveys are needed before those basic definitive and administrative principles needed to allow this development and extension, are fully detailed and generally accepted. It is hoped that this enquiry has contributed to this, at present, meagre field. The basic requirements of any Industrial Health Survey are a census of industry, together with a census of the working population of that industry. Thereafter the methods and focus of enquiry divide. No matter what the focus of attention, is or should be, [redacted], any plan for the development of the Industrial Health Services of an area, can only be made after some account is taken of those services provided already, and of the personnel engaged upon this work. [redacted]. Furthermore, an estimate of the latent need for an I.H.S. for the area must be made before any attempt can be made to fill it.

Whilst the definition of the function of an I.H.S. given here may be controversial in some circles, it would appear as if it is the generally accepted definition of those closely concerned and acquainted with this work. The administrative concept is much more controversial. As there is little actual factual experience upon which to criticise or support it, any dispute arises mostly from differing empirical opinions and not from the critical assessment of past experience.

Despite the lack of information and agreement upon these topics, so much is clear. Apart from the, admitted, need for further Surveys to be made and for more information, particularly about the financial aspects, to be amassed, there is a further definite and urgent need for some form of working social experiment to be conducted. The mere collection of information about an existing situation and the deduction of needs and methods from this is not enough. A more dynamic, positive, and constructive approach is needed. Any such experiment must be conducted in an area more typical of the British industrial scene than any so far attempted. As industry in this country is largely concentrated in densely populated industrialised conurbations, only experience with an I.H.S. in such an area will produce the experience and working knowledge so badly needed. Such an experiment will be expensive. It may be too expensive for either private industry or a philanthropic foundation to consider it feasible, either jointly or together. If this proves so it may be necessary for the State to conduct it.

If, as seems probable, some form of administrative and functional rearrangement of the present National Health Service becomes necessary, it may be worthwhile for the State to approach such a reorganisation experimentally. It could then try such exploratory rearrangements and methods in an industrialised conurbation at the same time as it launched an experimental I.H.S. for that region. This joint social experiment could then serve several purposes, not least of which would be an attempt to co-ordinate, or integrate, the reformed N.H.S. with the embryonic National Industrial Health Service.

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